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The purpose of this journal is to assemble researched and documented ideas that help drive successful learning and motivate business students to learn. The intention is to draw ideas from across both methods and disciplines and to create a refereed body of knowledge on innovation in business education. As a result, the primary audience includes business education faculty, curriculum directors, and practitioners who are dedicated to providing effective and exciting education.

We invite you to read about innovations published and apply in your classroom. We also encourage you to develop your original creative ideas, prepare an article, and submit for review.

This particular issue includes a number of interesting classroom innovations in diverse areas.

Peter J. Billington, *Editor*

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Revisiting The Big Six as a Strategic Imperative: Strategic Planning, Faculty Engagement, and Student Success

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ABSTRACT

This work examines the impact of Gallup's "Big Six" indicators of the undergraduate college experience on student outcomes and life preparedness. As a follow-up to a previous study that examined the efforts of a small private business college in fostering an environment of mentorship, support, and faculty engagement, the work focuses specifically on strategic planning and faculty "buy-in" and how these variables improve the academic and support experiences that have proven invaluable for student success. The results reveal significant improvement in perceived academic support measures after the implementation of a new strategic plan. In doing so, the work revisits the contribution of high impact practices to the success of the business program and how these successes offer much to other programs/institutions seeking to improve student outcomes in a rapidly changing social environment.

Keywords: Big Six, work life preparedness, assessment, student outcomes

INTRODUCTION

As public trust and the perceived value of college degrees continue to decline (Clark, 2025), preparing graduates for work and life after graduation continues to be a major theme in higher education today. The pressure on colleges and universities to become "difference makers" in preparing students for life after college is stronger than ever, as is the mandate to distinguish academic programs in the face of an increasingly competitive higher education environment (Harris & Tracy, 2022). This pressure is expected to increase as the imminent "demographic cliff" arrives in the very near future.

It is predicted that schools that will thrive in such an environment are those that not only focus on student preparedness, but that also emphasize mentorship, experiential learning, and authentic faculty engagement (Mintz, 2025). The role of faculty is paramount given that active faculty participation in student life, through engagement and mentorship, has been shown to dramatically increase the likelihood of graduate success (Bouchrika, 2025). It is therefore not surprising that past notions of an "ivory tower" approach to higher education are long gone as parent and student expectations for strong returns on educational investments have grown significantly (Harris and Tracy 2022).

The current work details the continuing efforts of a small private business program that seeks to achieve success in the ever-evolving environment of accountability, transparency, and change. Specifically, the study focuses on the following research question: What impact does faculty participation in, and "buy-in" of, strategic planning initiatives have on important student outcomes? It is suggested that the insights offered in this work are applicable to other programs that recognize the need to examine the crucial role of the holistic student experience in business education today.

BACKGROUND

As originally noted by Harris and Tracy (2022), Gallup, Purdue University, and the Strada Education network began studying post-graduation student success by utilizing what has become known as the "Big Six" indicators of college experience. These efforts have now encompassed over 100,000 American college graduates regarding their college experiences and how these experiences helped improve their prospects for success after graduation (Bruni, 2018). The items in the Big Six inventory include three academic support items (i.e., "I had at least one professor who made me excited about learning", "My professors cared about me as a person", and "I had a mentor who encouraged me to pursue my goals and dreams") and three items pertaining to experiential learning ("I worked on a project that took a semester or more to complete", "I had an internship or job that allowed me to apply what I was learning in the classroom", and "I was extremely active in extracurricular activities and organizations while I attended college"). The results of the studies have revealed that each incremental experience is associated with improved life preparedness,

and that each influence both time to degree completion and confidence on the job. For example, as reported by Seymour and Lopez (2015), early studies revealed that the vast majority of college graduates (fully 82%) who strongly agreed that they had all six experiences as an undergraduate also strongly agreed that their schools had prepared them well for life after college. In contrast, only 5% of those who did not strongly agree that they had any of these six experiences strongly agreed that they were well prepared for life after college. Furthermore, a 2019 study by Gallup/Strada revealed that the Big Six experiences also influenced confidence on the job market. In short, the proportion of currently enrolled students who strongly agreed that they were confident they would graduate with the skills and knowledge they would need to be successful in the job market rose incrementally with each additional experience assessed. For example, only 12% of students who had none of the experiences were optimistic about their job readiness, while fully 76% of students who strongly agreed with having all six experiences reported feeling quite confident in their preparation for life after graduation (Crabtree, 2019a). Given the uncertainty and anxiety felt by many college graduates today, it is imperative that students feel as confident as possible when entering the job market (Maurer, 2025).

Not surprisingly, the importance of the Big Six indicators has drawn significant attention in both higher education and the popular press (e.g., see Pope, 2019), leading to an increased appreciation of the role of colleges in improving the quality of undergraduate experiences. As a case in point, Basko (2021) recommended that improving support and experience aspects of education not only would dissuade students from leaving college, but more importantly, would provide them with compelling reasons to press on toward degree completion as well.

CASE STUDY

As first reported by Harris and Tracy (2022), the high impact practices and experiences in the Big Six are both easily measurable and transferrable across colleges and programs, and they are frequently well-suited for smaller college and university programs due to what is often a more strenuous focus on high-touch variables such as mentoring and relationships (Crabtree, 2019b). As such, the Barney Barnett School of Business and Free Enterprise (hereafter "BBS") at Florida Southern College in Lakeland, FL (U.S.A.) has had a strong interest in the Gallup and related studies.

The BBS mission prioritizes meaningful, deep engagement among students, faculty, and the broader business community while fostering a culture of engagement, impact, and experiential learning that equips graduates to leave a positive and consequential impact on society. The Gallup inventory has provided an invaluable opportunity to assess the School's efforts in delivering life-changing impacts on students, and as such, the BBS has tracked Big Six data now for nearly a decade. While the early results of these assessments were quite positive for BBS [as reported in Harris and Tracy (2022)], what was unknown at the time was how strategic planning and increased faculty "buy-in" could impact continual improvement with the efforts. Specifically, in the time period since the original 2022 study, BBS has developed and implemented a new Strategic Plan (2023-2028) that focuses on six key elements with action plans: (1) Curriculum Innovation, (2) Faculty & Staff Development, (3) Student Outcomes, (4) Brand Enhancement, (5) Enrollment Management, and (6) the Development of an Entrepreneurial Ecosystem.

What is necessary in the continued examination of the efficacy of the Big Six approach is a consideration of the crucial linkage between strategic planning and student perceived outcomes. To this end, the newly focused Barnett School Strategic Plan, which aligns well with Big Six indicators, was chosen as a focal point for the current study. Specifically, the "curriculum innovation" initiatives included in the plan emphasizes experiential activities, including semester-long projects, the addition of new majors and minors, and the expansion of analytics and real estate programming. These efforts reflect the Big Six indicators of long-term projects and faculty-driven excitement about learning. Similarly, the "student outcomes" initiatives such as the commitment to 100% internship participation (a curricular requirement at BBS), peer tutoring, and increased graduate school/job placement rates focus on ensuring that every student engages in applied learning opportunities. These goals reinforce the Big Six outcome of linking classroom theory with real-world practice.

The success of these initiatives hinges dramatically on faculty buy-in. Faculty are the direct link to students' experiences of mentorship, care, and academic excitement. Strategic actions such as faculty retreats, new faculty mentorship programs, summer research grants, and international teaching opportunities create an environment wherein faculty are invested partners in student success. By involving faculty in the design and assessment of Big Six-aligned experiences, the BBS ensures sustainability and authenticity. Faculty engagement transforms strategic plans from

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administrative goals into lived student outcomes, reinforcing the culture of mentorship and support that defines the School.

DATA COLLECTION

The data collection for this work came as the BBS continued to monitor the Big Six survey indicators through annual survey administrations (i.e., "I had at least one professor at BBS who made me excited about learning", "My professors at BBS cared about me as a person", "I had a mentor who encouraged me to pursue my goals and dreams", "I worked on a project that took a semester or more to complete", "I had an internship or job that allowed me to apply what I was learning in the classroom", and "I was extremely active in extracurricular activities, organizations, or athletics while I attended Florida Southern College"). The BBS utilizes a five-point Likert scale for the survey, which follows the format of the original Gallup efforts (e.g, "1" = strong disagree; "5" = strongly agree). As a matter of context, Florida Southern College is located in Lakeland, Florida, a small city with a population of approximately 130,000 residents. The city is located in Central Florida, on what is known as the "I-4 Corridor", between the metropolitan areas of Tampa and Orlando. The College has an enrollment of approximately 3,300 students and BBS has an enrollment of approximately 900 students. The BBS offers a variety of degree programs at both the undergraduate and graduate (Master's) levels, and the BBS is accredited by AACSB.

The BBS survey is administered each academic year (from 2017 to current) on a blind basis to graduating seniors via SurveyMonkey. Student participants are enrolled in the BBS capstone senior seminar business course, which is most often taken during the final semester immediately preceding graduation, and response rates have been quite high (e.g., approximately 95% each year). The results are disseminated to, and discussed amongst, faculty at annual retreats and the data have been used to inform continual program improvements.

RESULTS

The revised examination of the BBS efforts in Big Six tracking has allowed for a number of years' worth of data, spanning from 2017 through current (see Table 1, shown for data up to 2024). While the results have been generally positive, the BBS examines the data for signs of potential improvement areas. Most data points have been relatively consistent and have shown gradual, and sometimes modest, improvement. One exception is in the academic year of 2023. As with the original Harris and Tracy (2022) study, the results presented in Table 1 include the data points in which respondents selected "strongly agree" on the Likert scales, which is again consistent with the Gallup studies.

Table 1: Big Six Survey Results – Academic Years 2017-2024

BBS Big Six Results AY 2017-2024									
	% Strongly Agree								25 v '24
Support Measures:	**17-'18**	**18-'19**	**19-'20**	**20-'21**	**21-'22**	**22-'23**	**23-'24**	**24-'25**	**y.o.y. Δ%**
Professor(s) made me excited about Learning	67	70	74	72	69	77	68	**80**	18%
Professors cared about me as a person	51	48	50	50	51	58	47	**58**	23%
I had a mentor who encouraged me...	39	41	40	45	44	46	33	**58**	58%
Strongly agree with all three	30	26	33	27	29	40%	25%	**46%**	21%
Experiential Measures:	**17-'18**	**18-'19**	**19-'20**	**20-'21**	**21-'22**	**22-'23**	**23-'24**	**24-'25**	**y.o.y. Δ%**
I worked on a semester long project	29	42	46	35	37	55	41	**57**	39%
I had an internship...apply what I learned*	72	77	72	70	86	90	87	**90**	3%
I was extremely active in extracurriculars..	48	42	46	48	48	50	53	**56**	6%
Strongly agree with all three	13	14	21	18	21	31%	19%	**44%**	131%
Strongly agree with all six	7	7	11	13	12	19%	13%	**22%**	9%
n =	87	107	113	150	135	81	85	50	

The most notable results after the administration of the strategic plan revealed significant improvements in support measures, with dramatic increases in agreement to the items "professor(s) made me excited about learning" (80%), "professors cared about me as a person" (58%), and "I had a mentor who encouraged me" (58%). It is noted that the marked improvement in the "internship" item likely results from the internship requirement being added to the B.S.B.A. curriculum program(s) in 2018, as discussed previously. The study participants would have all been under this requirement.

While generally positive, some results continue to signal the need for obvious improvement. It was unexpected that only 58% of respondents in the most recent survey would indicate strong agreement with the item "I worked on a semester long project while at BBS" given that nearly all upper-level courses in the B.S.B.A. program(s) require such projects. Though conjecture, it could be that students weighted their participation in group projects at a level lower than "strongly agree". Also, the levels of strong agreement for "I had professors who cared for me as a person (58%)" and "I had a mentor who encouraged me to reach for my goals (58%)" while improving significantly, reveal room for continued growth. What is most relevant for the current analysis, however, is the significant improvement in student ratings for these items after the implementation of the new strategic plan.

DISCUSSION

What can the experiences at BBS suggest for other business programs of similar stature? First, as the pressure on higher education continues to increase, and as the popularity of the Big Six measures grows nationwide, it is suggested that schools regularly track these indicators as a part of their assessment initiatives and pay close attention to impacts on the support variables. As noted throughout, faculty buy-in is critical as faculty become more attuned to the changing expectations and demands of business education in the twenty-first century.

Second, we have seen how two indicators improved after the implementation of the new plan: "I had a mentor who encouraged me to pursue my goals and dreams" and "My professor(s) cared about me as a person". Although the results remain lower than what the BBS would like, we did realize a 42% and 23% improvement on each. While the other support measure ("Professors made me excited about learning") was strong, the mentoring and caring questions were clearly impacted by the renewed focus on faculty-student engagement. By revealing the impact that the strategic planning process can have on faculty development, the current study extends the work of Harris & Tracy (2022) thereby highlighting the proposed casual linkage between planning and student outcomes.

Third, as we see that our results for students "agreeing" or "strongly agreeing" to all three support measures nearly doubled since the implementation of the new plan (25% to 46%), we believe that the strategic planning process is essential for all faculty/student interactions as reflected in the survey instrument. As such, we stress that it is not only faculty participation in the planning process, but the development of a culture of academic support that is critical for success with the Big Six. Although these results may be considered preliminary based on the modest number of years sampled, the faculty at BBS believe that much has been gained from placing the Big Six instrument as a focal point of our instructional/mentorship efforts.

While insights have been gained pertaining to strategic planning initiatives and impacts on the Big Six indicators, it is important to note the limitations of the study. First, only one business school was examined, limiting the generalizability of the findings. Future work should compare more than one institution on the role of the Big Six in business education. Second, self-report bias was not addressed in this study. Although the Big Six instrument was designed solely for student feedback, future research could match survey findings to objective sources, such as actual count of internships, number of semester projects, or official count of extracurricular participation or enrollments. Objective sources of data would help bolster the results and potentially shed light on any self-reporting bias concerns.

CONCLUSION

The strategic planning process has long been recognized as having a significant influence on business program success, particularly when faculty are included in the process and when they "buy in" to the initiatives included in the plan. By incorporating the areas identified in the Big Six, the BBS has enabled faculty to ensure both student life preparedness and confidence entering the job market. As such, the results of this study contribute to the business education literature by presenting empirical evidence of how student outcomes can be improved by Big-Six focused strategic planning. Though the importance of strategic planning in curriculum improvement has been assumed for years, few studies have explicitly focused on proposed causal linkages, and this is a key component of the current work. The BBS will continue to administer the survey, to disseminate results to the faculty as a whole, and to identify areas for continual improvement.

As with the Harris and Tracy (2022) study, we believe that our peers have much to gain by self-monitoring the Big Six support and experiential elements as they pertain to their programs. We note that the original study revealed that business schools have lagged behind universities and colleges across the Big Six indicators, signaling that significant opportunities remain for the role of the survey items in strategic and tactical planning initiatives. As the authors

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originally suggested, delivering outstanding curriculum involves a focus on the whole person, both inside and outside of the classroom. Also, and again as noted previously, the investment in most cases is small and the rewards can be quite large. Although conjecture, a lack of consideration of the key elements found in the Big Six may contribute to a gradual decline in the relevancy and vitality of our schools and programs. It is hoped that the results from this study further encourage other business programs to consider the importance of experiential and support initiatives in business education and strategic planning today.

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From Startup to Success: Using Gen Z Entrepreneurs to Teach Economics

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ABSTRACT

This paper builds upon the work of McCaffrey (2016) who explores how economics can enhance entrepreneurship education. We extended the work of McCaffrey in two distinct ways. First, we emphasize the economic understanding every private enterprise needs to be successful. Second, we developed teaching guides which feature three successful Gen Z entrepreneurs – Max Hayden, Mikaila Ulmer, and Alexandr Wang. Their stories embody business acumen and the entrepreneurial ability necessary to succeed in a rapidly changing world. The lessons build upon the work of Milovanska-Farrington et al. (2024) and DeWind et al. (2023) who illustrate foundation-level economic concepts in an engaging way that resonates with Gen Z students. The purposes of the lessons are to generate interest in economics and entrepreneurship, and to inspire college students to begin their entrepreneurial journey. These lessons are also especially timely: Joel Mokyr, Philippe Aghion and Peter Howitt won the 2025 Nobel economics prize for their work on how innovation, entrepreneurship, and the forces of "creative destruction" can drive economic growth.

Keywords: entrepreneurs, principles of economics, private enterprise, Gen Z
JEL codes: A20, A21

INTRODUCTION

Data from 2023 show that 93% of Gen Z have taken some steps toward building their own small business, 84% consider small business ownership as a viable career path, with 75% of these individuals wanting to become entrepreneurs.[1] Given this interest of Gen Z in entrepreneurship and the positive impact of entrepreneurship on individuals, businesses, society and countries (Minniti et al., 2008; Van Praag et al., 2007; Doran et al., 2018), it is important for economic educators to explain the origins of ideas that allow students to seize entrepreneurial opportunities in the future.

Regrettably, entrepreneurship is largely ignored in economics education. Kent and Rushing (1999) found that entrepreneurial education was mostly absent from principles of economics textbooks. Phipps et al. (2012) reinforced the findings of Kent and Rushing, noting that introductory economics textbooks continue, for the most part, to lack comprehensive coverage of entrepreneurship. To help address this issue, McCaffrey attempts to bridge the gap between entrepreneurship education and economics by providing a list of undergraduate readings that can be used to teach entrepreneurial lessons using an economic framework. We build on the work of McCaffrey and show how studying economics can help entrepreneurs make better business decisions. However, we have selected an approach more suitable for Gen Z.

Milovanska-Farrington et al. (2024) present case studies of three female Gen Z entrepreneurs: Kylie Jenner, Olivia Dunne and Olivia Rodrigo; while DeWind et al. (2023) focus on Taylor Swift and MrBeast, two of the most recognizable and popular celebrities in the world. We extend their analysis by using case studies of three tech-savvy Gen Z entrepreneurs, Max Hayden, Mikaila Ulmer and Alexandr Wang, who started their own businesses from humble beginnings and established million-dollar businesses. Max mastered the art of arbitrage during COVID-19. Mikaila created her own brand of lemonade: “Me & the Bees Lemonade” at the age of 11. Alexandr is the founder of Scale AI, AI-powered, data-centric technology that helps companies improve and analyze data to train machine-learning algorithms. Their business success provides real life lessons that resonate with students and could inspire them to embark on a rewarding entrepreneurial journey. As entrepreneurship and small business management are closely related, the stories provided in this article could also teach students lessons on how to effectively operate and sustain their business over time. Specifically, entrepreneurship relates to recognizing opportunities and starting a business while small business management provides the stability and structure necessary for sustained growth and success. The lessons we provide exemplify both excellent entrepreneurial skills and business management, making the materials instructive and inspiring for a business-oriented generation of students.

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LITERATURE REVIEW

Connecting with students in an ever-changing world is an ongoing challenge that all educators face. The current intake of high school and college-level students is predominantly Gen Z, born between 1997 and 2012. The learning preferences and lifestyles of Gen Z students are different from previous generations of students. While the millennial generation embraced traditional pop culture mediums like film, music and television, social media platforms such as YouTube and TikTok are the favored streaming and content channels for Gen Z. According to the Pew Research Center, 93% of teens surveyed said they use YouTube, making it the dominant media platform for Gen Z. TikTok (63%), Snapchat (60%) and Instagram (59%) are the other platforms enjoyed by the majority of teenagers.[2] Gen Z overwhelmingly prefers user-generated content, followed by music/podcasts, gaming, and only then the TV.[3] Given the change in lifestyles, it is time for educators to evolve from a mindset of teaching millennials about economics to focusing on Gen Z students (Carrasco-Gallego, 2017).

The overwhelming majority of studies over the past decade have focused on ways to use pop culture to illustrate economic concepts via traditional mediums including music (Geerling et al., 2021; Ben Abdesslem, 2022); film and television shows (Geerling, 2012; Mateer, 2012; Wooten, 2018). A new strand of research in economics education is emerging, one which focuses on popular celebrities and influencers among Gen Z (DeWind et al., 2023; Geerling et al., 2023; Milovanska-Farrington et al., 2024). Incorporating Gen Z backstories into economic education aligns with the call from Carrasco-Gallego (2017) for educators to evolve their teaching practices to focus on Gen Z students.

MEET THREE GEN Z ENTREPRENEURS

In this section, we present the stories of three Gen Z entrepreneurs, describe the key economic concepts that instructors could illustrate through these lessons, and specify the learning objectives of each activity. Then, in an Appendix at the end of this article, we provide links to media clips that introduce students to each entrepreneur and their business, a teaching guide that includes a summary of their backstory, instructions for use, questions that could be used as a form of summative assessment, and an activity to reinforce the lessons students have learned.

To evaluate students' understanding of the concepts emphasized in the story of each entrepreneur, instructors lead a class discussion as described in the instructions in the teaching guides in the Appendix, do the class activity and ask students to answer the assessment questions offered in the Assessment section of each guide. To implement the activities in an economics classroom, instructors only need to be able to show a video to the class and have access to a whiteboard and markers.

A. Max Hayden

The story of Max Hayden provides an example of arbitrage, a nearly simultaneous purchase and sale of goods in different markets. Students learn how entrepreneurs like Max can make a profit from arbitrage and will appreciate the importance of entrepreneurial ability in choosing what goods to buy and sell.

Max Hayden began reselling products (like candies and spinners) when he was in middle school, but his business really took off during COVID-19 in 2020 when he engaged in retail arbitrage. The health crisis triggered shortages of a variety of products, disrupting entire industries and frustrating consumers. It also created opportunities in the resale market, enabling Max and other entrepreneurs to make a significant profit by reselling scarce items on Amazon, Facebook, and other online markets.

Max got his start buying gaming consoles. He bought and resold PlayStation and Xbox machines for as much as $1,100—more than double their $500 sticker prices.[4] This helped Max learn real-life business skills, exploring the aisles at Walmart to find price inconsistencies on items such as swimming pools, patio heaters and Pokémon trading cards.

Max needed accurate price information, so he opened an account on the Amazon store. He also utilized Discord message board groups to learn which store items were in short supply and where he could locate them. As his sales grew, he turned the family garage into a storage facility. Using a laptop, tape and printer, Max made almost $2 million in sales, earning a profit of over $100,000 – while helping to reduce pricing inefficiencies in the market by connecting the consumers in need to the item they wanted. Eventually, Max leased space at a storage facility to help keep his marginal costs low.

Many resellers were criticized during COVID-19 for attempting to resell essential medical equipment. Max intentionally avoided those items and focused on reselling luxury goods rather than necessities. Max is currently studying Business Analytics at Rutgers University.

The teaching guide for Max Hayden provided in Appendix A.1 highlights the following **economic concepts**: arbitrage, supply, demand, shortages, market clearing price, and scale. After completing the exercise, students will be able to:

- Explain what arbitrage is to someone unfamiliar with the concept.
- Understand how it is possible to make profit from arbitrage.
- Understand how the economic concepts of supply and demand are integral to arbitrage.
- Understand the role that entrepreneurial ability plays in identifying what to buy and sell.
- Understand why businesses must scale their operations as they grow.

B. Mikaila Ulmer

While many children sell lemonade, Mikaila's entrepreneurial spirit turned the idea into a business. She used her great-grandmother's recipe for homemade flaxseed lemonade and added honey to improve the flavor and make the lemonade sweeter. Her story offers a real-world example of the importance of product differentiation and knowing what makes a business different in a monopolistically competitive market.

In 2009, at the age of five, Mikaila started selling her lemonade outside her home in Austin, Texas. Instead of saving or spending her profits, Mikaila donated a percentage to organizations dedicated to protecting honeybee colonies. She established her own brand of lemonade, "Me & the Bees Lemonade," when she was 11. She went on *Shark Tank* the same year and successfully pitched her idea to the sharks. Mikaila accepted a deal with Daymond John ($60,000 for a 25% stake in her company).[5] The exposure on *Shark Tank* provided Mikaila with the opportunity to sell her brand nationally. Whole Foods signed her for $11 million. Over 1500 stores sell her products today.[6]

As the popularity of "Me & the Bees Lemonade" began to grow, so did its product lineup. Mikaila added new lemonade flavors: Prickly Pear, Ginger, Iced Tea, and Mint. The important lesson to learn here is the need to continually differentiate your product to grow sales. Mikaila has also diversified her product lineup by adding beeswax lip balms and other branded merchandise from "Me & the Bees Lemonade"'s online store. Mikaila also authored a memoir "Bee Fearless: Dream Like a Kid" that provides readers with helpful tips on pursuing their own ventures. These initiatives have resulted in sales of over $1 million annually. "Me & the Bees Lemonade" has made Mikaila a millionaire a couple of times over.

The teaching guide for Mikaila Ulmer provided in Appendix A.2 is relevant to a discussion of the following **economic concepts**: product differentiation, monopolistic competition, profit, intellectual property, brand, and expansion. After completing the exercise, students will be able to:

- Understand the concept of product differentiation.
- Determine the market structure a business operates in based on its characteristics.
- Understand why it is important for businesses to build a strong brand.

C. Alexandr Wang

Technologically savvy, entrepreneurial, and inspired by AI, Alexandr Wang co-founded Scale AI, an AI-powered, data-centric technology that helps companies improve and analyze data to train machine-learning algorithms. His entrepreneurial spirit and work helped him become the world's youngest self-made billionaire in 2022 at the age of 24. More importantly, the story of Alexandr and Scale AI is an excellent illustration of how technological advancements could impact costs, efficiency, and firms' ability to outperform competitors. Students will have the opportunity to discuss how technological advancements change supply, as well as the production possibilities frontier. They will also learn how artificial intelligence could augment human potential.

Alexandr Wang was born in 1997. As a kid, he participated in national math and coding competitions. As his skills advanced, he began to work as a software engineer for Addepar in 2014. From 2014 to 2016, Alexandr was the tech lead for Quora. He also spent time as an algorithm developer at Hudson River Trading.[7] He dropped out of MIT in 2016 to devote himself to Scale AI, whom he co-founded with Lucy Gao, who he worked with at Quora.

Scale AI uses both software and human workers to label, or tag, the vast troves of text, images and video data. This

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powerful technology enables companies to analyze raw data faster than human analysts. This provides cost-savings opportunities and prospects in understanding existing data more clearly. For example, Scale AI can analyze satellite images faster than humans, providing real-time information that military units need to react faster to geopolitical conflicts.[8] The same is true in business, where firms receive data on sales, expenses, inventories and other critical information but cannot sort through the data and analyze it as quickly as AI can. Therefore, firms using AI gain a competitive advantage over firms that process their information less efficiently. Understanding Scale AI's central role in the information age, Alexandr noted: "Our goal is to help them unlock the potential of the data and supercharge their businesses with AI."[9]

Alexandr also has a message for the complacency/fear that many people have when it comes to AI and America's ability to become the dominant player in AI. After a trip to China in 2018, he became outspoken about the threat posed by China's AI ambitions: "It dawned on me that this technology had become really, really critical for how the future of our world is going to play out," adding, "I think it's really important that not just ourselves, but as many AI companies as possible, are working to help bridge the gap."[10]

The teaching guide for Alexandr Wang provided in Appendix A.3 helps students understand the following **economic concepts**: opportunity cost, factors of production, production possibilities frontier, supply and demand model, equilibrium price, equilibrium quantity, elasticity, and total revenue. After completing the exercise, students will be able to:

- Recognize examples of factors of production.
- Analyze how technological advancements change the production possibilities frontier.
- Apply the supply and demand model to identify the effect of technological changes on supply.

CONCLUSION

This paper builds on the work of McCaffrey (2016) who laments the lack of coverage in economics of the role of entrepreneurship and suggests a list of readings to engage students. While McCaffrey's approach is well-intentioned and will resonate with dedicated students, it is not the way most of Gen Z learns. It is widely accepted that the learning preferences and lifestyles of Gen Z students are different from previous generations of students. They have grown up with YouTube, Instagram, TikTok, smartphones and the internet. The ongoing challenge for educators is to adapt their teaching materials to respond to Gen Z. This paper is part of a new strand of research in economics education which focuses on the celebrities and influencers among Gen Z (DeWind et al., 2023; Geerling et al., 2023; Milovanska-Farrington et al., 2024). It goes beyond this frontier of celebrities and Gen Z influencers by using three prominent and successful Gen Z entrepreneurs, to give students a relevant set of teaching guides.

Future research could examine how illustrating economic concepts in an engaging way relevant to Gen Z affects students' understanding, application, and retention of the material. Collecting classroom-based evidence to assess student outcomes would offer insights into the effectiveness of the suggested approach. The economic education literature would also benefit from comparing the effectiveness of the activity proposed in this article and other methods educators commonly use. Finally, exploring how the effectiveness of different teaching methods and activities varies across different subpopulations is another area of future examination.

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Author contribution: *The authors have contributed equally to this research, including the analysis, draft and revision of the paper. They have both read and approved the final manuscript. They are responsible for all aspects of the work.*
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APPENDIX: GEN Z ENTREPRENEURS IN THE CLASSROOM: TEACHING GUIDES

A.1: Max Hayden: This 16-Year-Old's Company Brought in Millions Buying from Walmart and Reselling on Amazon

Clip: https://criticalcommons.org/view?m=TGcP7MJxG

Backstory: Teen brought in millions selling stuff on Amazon during the pandemic (cnbc.com)

Clip Length: 6 minutes, 37 seconds

Introduction:

- Show the video to the class.
- Max researches what products to buy from the multiple groups on Discord where resellers share tips on what products to target and which retailers might still have a hot item in stock. He also spends hours every day researching which products are reselling for significantly more than their retail prices, whether it's on Discord or studying the data Amazon Marketplace provides to its sellers.
- As Max scaled his business, he had to do two things. First, he hired two high school friends to work for him. He paid them each $15 an hour to help with bookkeeping, packaging, and fulfilling orders. Second, he had to find additional space to store the products he was reselling, so he decided to split a commercial warehouse nearby by sharing the rent with other resellers.
- Here is a quote from Max: "I'm really just taking advantage of the market where the market drives the prices and the demand". If you could use only one word to describe Max's quote, what word would you choose?

Key Definition:

○ **Arbitrage** – is the nearly simultaneous purchase and sale of goods in different markets in order to profit from price discrepancies.

Assessment:

1. Max notices that swimming pools are selling for $300 at Walmart. He buys 10 pools in March and stores them in a warehouse for 3 months at a cost of $50 per pool. In June, he sold the pools on Amazon for $600 with a cost of shipping equal to $75 per pool. How much profit does Max make?

Answer: For each pool, his costs are $300 (purchase price) + $50 (storage fee) + $75 (shipping fee) = $425 per pool. His revenue per pool is $600, so he earns ($600 - $425) x 10 = $1,750 in profit.

2. Which of the following statements best describes how Max operates?

a. He buys and holds goods for a long time to maximize his profits.
b. He lines up buyers first and then shops for the goods they want.
c. He purchases goods on layaway and claims them later if they are selling at a high price.
d. He buys the goods upfront and hopes to realize a profit by making a quick sale.

Answer: For arbitrage to work, the entrepreneur must strike quickly. Max does this by buying products that are oversupplied in one part of the market and delivers those products to places where those products are undersupplied.

3. Max developed his business acumen in middle school by selling what product?

a. Magic cards
b. Fidget spinners
c. Homemade fudge
d. Non-Fungible Tokens (NFTs)

Answer: Fidget spinners were all the rage for a few months several years ago.

4. Time permitting, have your students complete this arbitrage exercise.

A.2: Mikaila Ulmer: From a bee sting to a multi-million-dollar business "Me & the Bees Lemonade"

Clip: https://criticalcommons.org/view?m=rm5sAZUAX

Backstory: https://www.capitalism.com/mikaila-ulmer/ and https://www.meandthebees.com/pages/about-us

Clip Length: 1 minutes, 38 seconds

Introduction:

- Show the video to the class.
- Mikaila Ulmer is an American entrepreneur born in 1999. She got stung by a bee twice in one week when she was four. She read about bees, their importance for pollination, and how the world would be affected if there were no bees.
- Traditional lemonade is made with sugar, lemons and citric acid. Mikaila started a lemonade stand where she began to sell lemonade using a recipe for flaxseed, fresh-fruit lemonade from her great grandmother that she modified to add honey. Why did Mikaila modify the traditional lemonade recipe? Encourage students to think about how sellers differentiate their product. Answers might refer to differences in taste, quality, environmental impact and price.
- Discuss the various market structures (perfect competition, monopolistic competition, oligopoly, and monopoly), and ask students to explain how we categorize each market structure.
- Mikaila had to change the name of her business from "Be Sweet Lemonade" to "Me & the Bees Lemonade" because of copyright issues. Ask students why intellectual property is protected and the impact this has on entrepreneurship and economic growth.
- Mikaila also got a deal from *Shark Tank* ($60,000 for 25% of her company). You can watch a story about this here. Most of your students will be familiar with the concept of the show: aspiring entrepreneurs from around the world pitch their business models to a panel of investors and try to persuade them to invest money in their deal business. Start a discussion with your students about the importance of funding for entrepreneurship.

Key Definition:

- **Product differentiation** – the attempt to distinguish a good or service from other similar goods and services available in the market.

Assessment:

1. How did Mikaila differentiate her lemonade from her mainstream rivals?

Answer: Mikaila used a recipe for flaxseed, fresh-fruit lemonade from her great grandmother that she modified to add honey.

2. Which market structure (perfect competition, monopolistic competition, oligopoly, or monopoly) best describes the market Mikaila operates in?

Answer: The market for lemonade has the characteristics of a monopolistically competitive market: many sellers, differentiated products, free entry and exit.

3. Mikaila donates 10% of her profits to charities to save the bees.[11] If she sells 70 glasses of lemonade at $4 each at a lemonade stand on any given day, and it costs her $1 to make a glass, how much would Mikaila donate to charities that day?

a. $280.
b. $70.
c. $21.
d. $3.

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Answer: The profit is the difference between total revenue (TR) and total cost (TC). Mikaila's TR is 70*$4 = $280, and her TC is 70*$1 = $70. The profit she makes that day is $280 - $70 = $210. She donates 10% of the profit, that is, 10%*$210 = $21.

4. Patents and copyright law:

a. are natural barriers.
b. create more competition.
c. mean more varieties of goods and services at different price levels.
d. assure inventors that no one will sell their ideas.

5. Whole Foods bought Mikaila's brand for $11 million. You can read more about the purchase here. How did she transform her brand of lemonade from a store outside her home in Austin, Texas, to a multi-million dollar business?

a. Mikaila pitched "Me & The Bees Lemonade" to investors on *Shark Tank*. One of the sharks, Daymond John, invested $60,000 for a 25% stake of her company.
b. Mikaila's appearance on *Shark Tank* helped raise her national profile and other investors tipped in over $800,000 for a stake in her company.
c. Mikaila's brand of lemonade resonates with people who are environmentally conscious consumers: she donates a percentage of her profits to organizations dedicated to protecting honey bee colonies.
d. All of the above.

6. Have your students play the Pitch It Game.
This interactive game will allow you to simulate the banter found on Shark Tank.

A.3: Alexandr Wang: Inspired by AI, he dropped out of college and became the youngest self-made billionaire at the age of 24

Clip: https://criticalcommons.org/view?m=o2YgQyYgF

Backstory: https://time.com/collection/time100-ai/6310631/alexandr-wang/

Clip Length: 6 minutes, 51 seconds

Introduction:

- Show the video to the class.
- Alexandr Wang, born in 1997, is the founder of Scale AI, AI-powered, data-centric technology that helps companies improve and analyze data to train machine-learning algorithms. It has already been used extensively in the automobile and health industries: from exploring the possibility of having easy, unlimited, eco-friendly cars, to analyzing patients' cases before they get to a doctor. Scale AI's customers include Toyota, Meta, Microsoft, PayPal, and others.
- Alexandr grew up in a small town in New Mexico, the son of Chinese immigrants who worked as physicists. He had always been curious to learn more. He left high school after his junior year to go to California to work as a software engineer. After being inspired by AI, he went to MIT for a year, but dropped out to start Scale AI in 2016.
- Before Wang created Scale AI, he read an essay by Paul Graham on how to come up with startup ideas. Graham's advice was to "live in the future, then build what's missing." In an interview, Wang has said that at that time he had "a jillion other ideas, like, maybe we should help people get doctors".[12] Ask students what they think Alexandr's opportunity cost of launching Scale AI has been.
- In an interview in which Wang has provided pieces of advice for young entrepreneurs, he has said that they should be authentic and have a "special thing that you [they] can offer".[13] Ask students why it is important to offer something "special" and "authentic" to customers. Discuss the importance of product differentiation.
- Alexandr Wang became the youngest self-made billionaire at the age of 24.[14] Ask students which factors contributed most to his success as an entrepreneur.

Key Definition:

○ **Technological advancement** – technological progress; occurs when new technology, methods or knowledge are discovered to improve production.

Assessment:

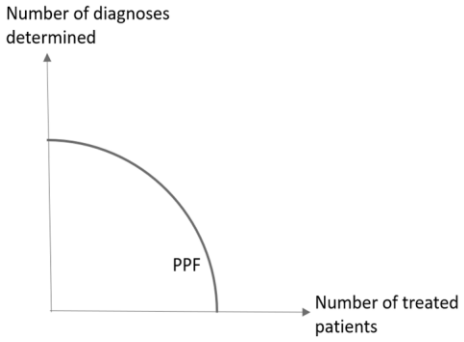
1. Scale AI utilizes software and human workers to label text, image and video data. You can read more here. Which two factors of production are software and workers examples of?

a. Physical capital and labor.
b. Human capital and labor.
c. Physical capital and natural resources.
d. A natural resource and human capital.

Answer: Software is an example of physical capital, while human workers are labor.

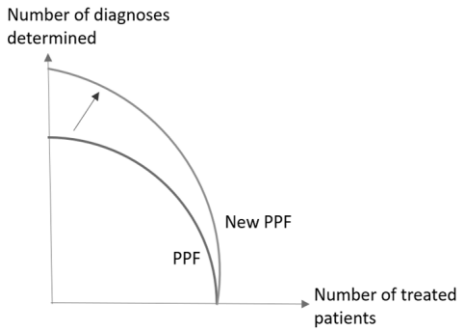
2. Consider the healthcare industry. Doctors in a medical facility spend time analyzing patients' cases to determine patients' diagnoses and spend time treating patients. The following graph shows the production possibilities frontier (PPF) for this medical facility, with the number of patients treated on the horizontal axis, and the number of diagnoses determined on the vertical axis. Suppose that the medical facility adopts Scale AI to diagnose more efficiently and effectively. How does this technological advancement change the PPF? Show the effect on the graph below.

Figure 1: Production Possibilities Frontier (PPF)



Answer: The new technology allows the medical group to diagnose patients more efficiently. Therefore, the PPF rotates as shown below.

Figure 2: Rotation of the PPF



3. For Voyage, a company that makes self-driving cars, high-quality data is essential for meeting development timelines and delivering an outstanding autonomous riding experience. Voyage has started to utilize Scale AI

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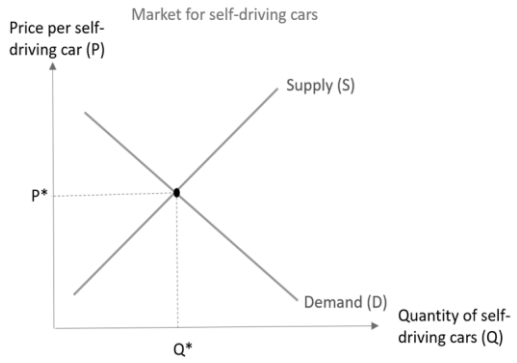
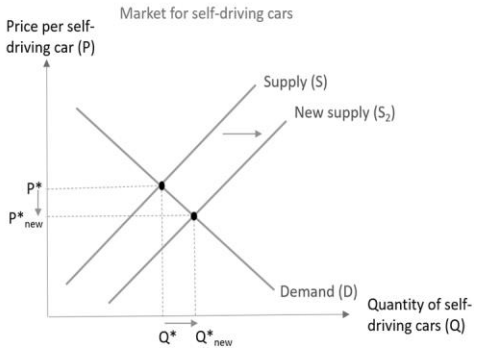
to create large volumes of such high-quality data.[15] What is the effect of this advancement on the market for self-driving cars? The following graph shows the supply and demand curves for self-driving cars. Use the graph to show the effect you identified above. What is the effect on the equilibrium price and quantity of self-driving cars?

Figure 3: Supply and Demand Curves in the Market for Self-Driving Cars



Answer: The utilization of Scale AI facilitates self-driving car production and makes it less costly. As the costs of production decrease, the supply of self-driving cars increases. Graphically, the supply curve for self-driving cars shifts to the right. As a result, the equilibrium price of self-driving cars decreases, while the equilibrium quantity increases. The effect is shown on the following graph.

Figure 4: Shift of the Supply Curve to the Right in the Market for Self-Driving Cars



4.Which of the following customers is likely to have the most relatively elastic demand for Scale AI's technology?

a. Flexport, a company that has to process critical logistics documents quickly and efficiently.
b. A food truck that sells tacos, pizzas and ice-cream at large events.
c. Vistapath, a company that could significantly improve patient experience through AI.
d. Pietra, a company that would like to enhance the images of its e-commerce products.

Answer: The food truck is likely to be the most price sensitive. In fact, Flexport, Vistapath and Pietra are all customers of Scale AI, so their demand for its services would be less price sensitive.

5. To reinforce the understanding that students have about the PPF, we recommend this short Kahoot! Quiz.

Footnotes:

1. What Gen Z Entrepreneurs Want, *Forbes* and Gen Z: the most entrepreneurial generation in history, *Leaders.com*

2. https://www.pewresearch.org/internet/2023/12/11/teens-social-media-and-technology-2023/

3. https://www.fastcompany.com/90929341/older-millennials-vs-gen-z-streaming-tv-likes#:~:text=Gen%20Z%20

4. Teen brought in millions selling stuff on Amazon during the pandemic

5. https://news.microsoft.com/features/preteen-powerhouse-meet-12-year-old-ceo-bee-ambassador-mikaila-ulmer/

6. https://www.businessinsider.com/how-to-gain-competitive-edge-strong-story-customer-service-research-2020-9

7. https://www.businessinsider.com/alexandr-wang-scale-ai-power-list-2024

8. https://time.com/collection/time100-ai/6310631/alexandr-wang/

9. https://www.prestigeonline.com/sg/people/alexandr-wang-is-worlds-youngest-self-made-billionaire/

10. https://time.com/collection/time100-ai/6310631/alexandr-wang/

11.https://www.beeculture.com/catch-buzz-bees-lemonade-founder-mikaila-ulmer-named-time-magazines-30-influential-teens-2017/

12 https://www.bizshakalaka.com/strategy-how-23-year-old-alexandr-wang-built-scale-ai-into-a-1-billion-company-in-less-than-3-years/

13. https://www.businessofbusiness.com/articles/scale-ai-machine-learning-startup-alexandr-wang/

14. https://time.com/collection/time100-ai/6310631/alexandr-wang/

15. https://scale.com/customers/voyage

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An Example of Incorporating Generative AI in Marketing Education

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ABSTRACT

This paper presents an example of the use of AI in marketing education. Specifically, it describes how the author incorporated generative AI into an MBA course on marketing analytics. The main finding is that one simple constraint on the use of generative AI, together with a carefully considered assessment strategy, provide a powerful framework for students to learn how to use generative AI in a way that is ethical and beneficial for their future careers. The constraint is that data cannot be uploaded to any online LLM. The assessment framework does away with tests and exams and focuses on realistic tasks that a marketing analyst could face on the job. In contrast to much of the AI-in-education literature, which emphasizes high-level frameworks and proposed strategies, this paper contributes a concrete, classroom-tested model of integrating generative AI into assessment and course design.

Keywords: marketing education, artificial intelligence, generative AI, data ethics, AI in education

INTRODUCTION

Recent research (Grewal et al., 2025) has suggested ways in which educators can restructure marketing courses to better prepare students for a world in which AI is essential to business. A survey conducted in 2023 revealed that 90% of business leaders feel that ChatGPT skills are beneficial for job applicants (Cohen, 2023).

This paper examines how a marketing analytics course at the MBA level has embraced generative AI as a pedagogical tool while establishing clear ethical boundaries to cultivate professional responsibility in future marketing analysts. Rather than restricting student access to AI tools, this approach provides graduated freedom with a single, strategically placed constraint. The restriction, prohibiting the uploading of data to generative AI platforms, serves as the foundation for a more nuanced pedagogy that develops both technical competence and ethical judgment. This paper contributes by offering a concrete, classroom-tested model for integrating generative AI into an MBA marketing analytics course (using a single, clearly articulated data constraint and a fully simulated assessment structure), in contract to much of the existing literature, which focuses on high-level recommendations rather than detailed implementation.

The urgency of this approach cannot be overstated. As organizations increasingly rely on data-driven decision-making (Stobierski, 2019) and marketing analytics roles become more prevalent in industry, MBA programs face pressure to prepare graduates who are proficient with cutting-edge tools while maintaining the highest standards of data stewardship. Generative AI tools like ChatGPT and Google Gemini have democratized access to coding assistance and technical explanation, lowering barriers to entry for data analysis. Yet this democratization comes with a critical challenge: the same ease of use that accelerates legitimate learning also facilitates potentially career-ending mistakes, such as inadvertently exposing confidential company data through platform uploads. This paper argues that effective AI integration in marketing analytics education requires a pedagogical framework that treats ethical data practices not as compliance checkboxes, but as core professional competencies developed through lived experience, meaningful assessment, and authentic professional simulation.

Educational assessment in the age of AI has also received significant attention in the literature (Evangelista 2025, Uanachain 2025). This paper examines an assessment strategy based entirely on simulation. There are no quizzes, tests, or exams. There are three presentations, and each one is a marketing task that students could realistically face as a marketing analyst. The final assessment is a mock interview for a marketing analyst position, in which the students can talk about the projects they have done in the class.

The final assessment serves several purposes. First and most crucially, it forces students to be able to explain what they have done. Any student who has 'coasted' by letting their teammates do the work will be revealed here. Any student who has used AI without bothering to understand the output will be revealed here. Second, a mock interview is excellent preparation for the actual interview that the students will have to pass in order to get a marketing analyst position.

THE MARKETING ANALYTICS CONTEXT: WHY DATA ETHICS MATTER MORE THAN EVER

Marketing analytics, as a discipline, sits at the intersection of strategy, statistics, and data stewardship. Marketing analytics professionals regularly work with sensitive information: customer behavior patterns, transaction histories, competitive intelligence, and strategic insights that directly impact organizational decision-making and competitive advantage. The responsibility to protect such data is not merely a legal compliance issue. It is a foundational element of professional identity and organizational trust.

The rise of generative AI has created new pathways for data exposure. Prior to widespread adoption of AI assistants, a data analyst might share a dataset or query with a colleague in person, forward it to a vendor, or email it to a consultant with explicit data governance agreements in place. These gatekeeping mechanisms, while imperfect, created natural friction that prompted deliberate decision-making about data sharing.
Generative AI tools, by contrast, present a frictionless interface: users can copy-paste data into a chat window, upload a CSV file, or describe their dataset in natural language with the expectation of receiving immediate assistance. The ease of interaction can obscure the reality that data uploaded to third-party AI platforms may persist in training datasets, be accessed by other users, or be subject to the platform's terms of service rather than the organization's data governance policies.

For MBA students aspiring to marketing analyst roles, the temptation to use AI tools for rapid data exploration and analysis is considerable. An assignment that might require an hour of careful coding and data inspection can be partially automated by describing the task to ChatGPT and requesting code or analysis. Yet this same convenience creates vulnerability. A student might upload a real customer dataset (or a dataset that resembles a real dataset) to accelerate an assignment, not realizing that this action violates confidentiality agreements, exposes proprietary insights, or demonstrates a dangerous lack of judgment that could derail their career before it begins.

This paper presents a teaching philosophy that acknowledges both the legitimate pedagogical value of generative AI and the critical importance of developing strong data ethics practices. The pedagogical framework described here does not attempt to shield students from AI or to treat these tools as inherent threats. Instead, it positions AI assistance as a professional skill that must be exercised with judgment, within clear ethical boundaries, and in service of deeper learning and authentic professional practice.

THE ART OF ASKING CHATGPT WITHOUT SHARING DATA

A critical skill taught in this course is how to request AI assistance in ways that describe the analytical task without exposing sensitive information. This skill is both pedagogically valuable and professionally essential. Students learn that they can leverage AI's coding expertise while maintaining data confidentiality by translating specific, data-bound problems into general, algorithmic questions.

For example, consider a student working on a project analyzing promotional pricing and its effect on customer purchase volume. The raw dataset is confidential: it contains customer names, transaction dates, specific products, prices, and revenue figures. A naive approach would be to upload this data to ChatGPT and request analysis. Instead, the student learns to reformulate the problem: "I have a dataset with date, customer, product, price, and revenue. I need to create an aggregate measure of weekly volume and price by product, then run a regression model of weekly volume versus average weekly price. Please write R code that does this."

When the student provides this description to ChatGPT, the AI tool sees only the structure of the data and the analytical goal. No actual customer names, no specific prices, and no identifiable information are shared. ChatGPT responds with general-purpose code using functions like group_by() and summarise() from dplyr to aggregate the data, and lm() or similar functions to fit a regression model. The student then takes this generic code, tests it on their actual data, and uses it to conduct the analysis. ChatGPT has provided the coding structure and syntax assistance without ever accessing the sensitive information.

This approach offers several advantages. First, it preserves data confidentiality completely. The AI tool learns nothing about the organization, the customer base, the product mix, or the pricing strategy. Second, it forces the student to think clearly about their data structure and analytical goal. The student cannot simply hand off a dataset and hope for AI-generated insights; they must understand their data well enough to describe it abstractly. This cognitive demand deepens learning. Third, it models how professional analysts actually work when using AI tools in environments with

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strict data governance. Many organizations prohibit uploading proprietary data to cloud-based AI services (Moveo 2025) but permit employees to describe analysis tasks and use the resulting code structure on local machines. By teaching this practice in the classroom, instructors prepare students for professional environments.

The course provides multiple examples of this reformulation process. Another example: a student wants to understand which customer segments have the highest lifetime value. Rather than uploading a customer master file, the student might ask: "I have customer data with fields for segment, acquisition date, and total purchases. How do I calculate lifetime value by segment and create a visualization showing the distribution?" ChatGPT generates code that the student can adapt to their data. A third example: a student is building a predictive model and wants to handle missing data appropriately. Instead of sharing data with ChatGPT, they ask: "I have a dataset with continuous variables that have some missing values scattered throughout. What are the best practices for handling missing data before fitting a regression model in R?" ChatGPT explains several approaches (listwise deletion, mean imputation, multiple imputation, or more sophisticated methods), and the student chooses an approach aligned with their analytical assumptions and applies it to their data.

Importantly, students are taught not just the restriction (don't upload data) but the reasoning and the workaround (here's how to get AI assistance while protecting confidentiality). This approach transforms the prohibition from a negative constraint to a positive professional skill. Students internalize that asking ChatGPT for code structure and explanation is smart practice; uploading data is not. The distinction becomes natural and intuitive rather than experienced as an arbitrary limitation.

Early in the semester, the instructor demonstrates this skill explicitly. During a coding lesson, the instructor might say: "I want to show you how I use ChatGPT in my own research. I have some survey data I'm analyzing. I can't share that data with you or with ChatGPT, obviously. But here's what I can do." The instructor then describes the data structure and analytical goal in general terms, shares the ChatGPT response, and explains how the code was adapted for the specific analysis. By modeling this practice, the instructor demonstrates that it is both possible and professional to use AI assistance while maintaining strict data stewardship.

THE COURSE DESIGN: STRUCTURE AND CONSTRAINTS

The marketing analytics course described here is organized around three major group projects and a culminating mock job interview. Each project involves a presentation to a simulated professional audience (either a prospective consulting client or an internal marketing team) requiring students to not only conduct analysis but communicate technical findings in terms accessible to decision-makers. The course relies entirely on freely available textbooks and open-source software (R), emphasizing accessibility and practical utility.

The three projects cover common marketing analytics projects. The first is on exploratory data analysis. This is something that a marketing analyst will need to do for almost every project they undertake. To make it as realistic as possible, the students have credible POS data, and the assignment is deliberately open-ended. The project is to present to new management a report on the state of the business. This approach forces them to consider what a new executive would want to know and how to present this information in the clearest possible way.

The other projects are also open-ended and cover important marketing analytics techniques. There are several that can be used depending on the interests of the students. For example, one project is for the students to take realistic customer data, create useful customer segments, and then create a marketing strategy for each segment. No restrictions are given on the number of segments or the clustering methodology. Of course, the classes cover different methodologies and how to determine the optimal number of segments, but for the project to be as realistic as possible, it must be open-ended. This way the students can practice exercising judgment as well as technical competence.

The course's approach to generative AI is deliberately asymmetric. Students are explicitly permitted—even encouraged—to use ChatGPT, Google Gemini, Claude, and similar tools to assist in code writing, to understand technical concepts, to generate explanations of statistical results, and to brainstorm analytical approaches. The single prohibition is sharply defined: students cannot upload data to any generative AI platform. This includes raw data files, aggregated data, and any data that could be traced back to identifiable individuals, organizations, or competitive insights.

This constraint is communicated clearly on the first day of class and reinforced repeatedly throughout the semester. The rationale is explained not merely as a rule to be obeyed, but as a reflection of professional norms and legal/ethical standards that students will encounter throughout their careers. As the course syllabus states: "Using ChatGPT to help with coding is smart professional practice. Uploading company data to ChatGPT is grounds for dismissal from a firm. You need to know the difference."

The specificity of this boundary serves multiple pedagogical purposes. First, it creates a clear, memorable rule that is easy to evaluate and enforce. Unlike more ambiguous restrictions (such as "use ChatGPT responsibly" or "don't let AI do your thinking"), the prohibition on data uploads is unambiguous and binary. A student either uploaded data or did not; there is no gray area for negotiation or interpretation. Second, the rule focuses attention on the most consequential risk: the actual exposure of sensitive information. While there are other ways to misuse AI tools in academic work, such as submitting AI-generated writing without attribution or using AI to circumvent learning objectives, the data upload restriction targets the harm that would be most damaging in a professional context. Third, and most subtly, the rule serves as a forcing function for deeper engagement with the material. Students cannot hand off a messy dataset to ChatGPT and request analysis; they must understand their data well enough to describe it verbally, frame their questions clearly, and interpret AI-generated code in the context of their specific dataset. This cognitive demand supports the course's learning objectives while maintaining the efficiency gains that AI provides.

LEVERAGING GENERATIVE AI FOR CODE LEARNING AND TECHNICAL EXPLANATION

Despite the restriction on data uploads, generative AI plays a substantial role in how students learn to code and understand statistical methods. R, the primary language of the course, has a steep learning curve for many MBA students. Packages like dplyr for data manipulation and ggplot2 for visualization require both conceptual understanding (what is a pipe operator? how does faceting work?) and procedural knowledge (what is the syntax? how do I troubleshoot errors?). Generative AI excels at providing immediate, contextual assistance with both dimensions.

GENERAL CODE LEARNING AND TECHNICAL ASSISTANCE

Beyond the data-specific case, generative AI also assists with general coding questions and technical learning. A student struggling with how to reshape data from wide to long format can describe their problem to ChatGPT: "I have customer data with columns for sales in 2023, 2024, and 2025. I want a row for each customer-year combination. How do I do this in R?" This question does not describe the actual customer data (which is confidential) but rather the structural problem to be solved. ChatGPT will typically generate relevant code using pivot_longer() from the tidyr package, explain the purpose of the function, and often provide variations or optimizations. The student can then test the code on their actual data, encounter errors, describe those errors to ChatGPT, and receive corrected suggestions. This rapid feedback loop accelerates the learning process compared to traditional methods like searching Stack Overflow, consulting documentation, or waiting for office hours.

The pedagogical value of this assistance is significant for several reasons. First, it removes friction from the learning process. In traditional programming education, students often become frustrated with syntax errors or get stuck on conceptual misunderstandings, leading to disengagement from the substantive learning objectives (in this case, marketing analytics questions) and excessive focus on technical troubleshooting. By providing immediate assistance with syntax and common patterns, generative AI allows students to maintain focus on the analytical question: What does the data tell us about customer behavior or campaign performance? Second, the dialogue with an AI tool models good professional practices. Real marketing analysts regularly consult documentation, ask colleagues for help with code, and iterate on solutions. Generative AI simulates this collaborative problem-solving in a way that is immediately available, non-judgmental, and infinitely patient. Third, repeated exposure to code explanations from ChatGPT, combined with hands-on testing and modification, builds mental models of how code works. A student who asks ChatGPT to explain why geom_point(aes(color=segment)) creates separate point colors for each segment is engaging in the same explanatory learning process they would use with a textbook or instructor, but with the advantage of immediate, personalized feedback.

The course also leverages generative AI for explaining statistical and analytical results to non-technical audiences. One of the core learning objectives is to translate technical findings into business language. For instance, a student might conduct a logistic regression to predict customer churn and need to explain odds ratios to a marketing director. ChatGPT can assist by translating technical output into plain language: "An odds ratio of 1.35 for email engagement means that customers who receive weekly emails are 35% more likely to be retained compared to those who receive

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no emails, holding other factors constant." This type of translation is a critical professional skill, and using AI to generate candidate explanations, which students then refine, test against their statistical understanding, and present, provides valuable practice.

ENSURING LEARNING THROUGH ASSESSMENT AND ENGAGEMENT

Importantly, the course design ensures that AI assistance with code and explanation does not circumvent learning. Every assessment involves explaining the work they have done and how it is relevant to business.

Students must understand and justify their analytical approach. Before requesting code from ChatGPT, students must articulate the business question and the statistical or analytical method needed to answer it. They cannot simply ask for "marketing analytics code" and expect ChatGPT to know what analysis is appropriate.

Students must also translate between abstract and specific. When requesting code assistance, they must reformulate their specific, data-bound problem into a general, abstract statement of the algorithmic task. This translation requires deep understanding of the data structure and the analytical goal.

Students test and validate code on their actual data. ChatGPT-generated code is sometimes incorrect, uses deprecated functions, or assumes data structures that don't match the student's dataset. Students must run the code, check the output, debug errors, and verify that results make sense in context. This hands-on engagement ensures comprehension.

Most importantly, students must explain results in the project presentations and mock interviews. The assessment strategy (described below) includes presentations and a mock job interview in which students must articulate why they chose a particular analytical approach, what the results mean, and how the insights should influence business decisions. There is no way to pass this assessment without genuine understanding.

This design avoids what might be called the "AI crutch" problem: the scenario in which students use generative AI to outsource thinking rather than to accelerate understanding. The critical difference is whether the AI tool is assisting the student's learning or replacing it. In this course, AI assistance with code is pedagogically sound because it is paired with rigorous assessment that requires understanding, and because the data-protection requirement forces meaningful engagement with the analytical task.

ASSESSMENT STRATEGY: ENSURING AUTHENTICITY THROUGH PROFESSIONAL SIMULATION

The assessment architecture of this course is designed to make it nearly impossible for students to progress without genuine learning, even if they use generative AI extensively. This architecture consists of three major group projects and a mock job interview.

GROUP PROJECTS WITH PROFESSIONAL AUDIENCES

Each of the three projects requires students to conduct analysis on a marketing dataset (provided by the instructor, not uploaded to AI platforms) and present findings to a simulated professional audience. The audiences are designed to reflect authentic marketing environments: a prospective consulting client considering whether to hire the student's team, or an internal marketing team evaluating a strategy proposal.

Presentations typically involve 20 minutes of prepared remarks plus 10 minutes of Q&A, followed by feedback from the instructor.

The presentation requirement serves multiple functions. First, it forces students to take ownership of the analysis. You cannot present work you don't understand; audience questions will quickly expose gaps in knowledge. A student who asked ChatGPT to "analyze this customer data" and then simply copied the response would falter when asked to justify methodological choices, explain counterintuitive results, or propose next steps. Second, presenting to a professional audience creates authentic motivation. Students are more engaged when they believe they are being evaluated by someone with real business expertise (even if that someone is their instructor playing a role) than when they are responding to abstract assignment requirements. Third, the presentation format develops communication skills that are central to marketing analyst roles. The ability to explain technical findings clearly to non-technical stakeholders

is arguably more valuable than the ability to code. It can be the difference between being a technical specialist and being a strategic advisor.

The group project structure introduces additional learning dynamics. Each project involves 4-5 students working collaboratively. Within the group, students typically specialize: one might lead the data import and cleaning, another the exploratory analysis, a third the modeling, and a fourth the presentation. This division of labor is realistic and efficient, but it also creates a risk that some group members will understand the work less deeply than others. This risk is mitigated by the mock interview (described below), but also by clear expectations that group members must be able to discuss any part of the analysis, not just their specialty. Instructors often observe in presentations that certain students are less confident when discussing components they didn't lead—this is fine and actually provides useful formative feedback. But the expectation is that through presentations and interview preparation, each student deepens their understanding of the full analysis.

THE MOCK JOB INTERVIEW: THE CRITICAL ASSESSMENT HURDLE

The final assessment event is a one-on-one mock job interview between each student and the instructor. This is not a group event; it is an individual assessment designed specifically to ensure that no student is "coasting" on group project work.

The mock interview is structured as a realistic job interview for a marketing analyst position. The instructor adopts the role of a hiring manager and conducts a 20-30 minute interview covering topics such as:

Project walkthrough:
"Tell me about the analysis you conducted in Project 2. What was the business question? Why did you choose that analytical approach?"

Technical depth:
"You used k-means clustering to segment customers. What is k-means clustering doing? How did you choose the number of clusters? What are the limitations of this approach?"

Decision-making and business judgment:
"Your analysis suggested three customer segments with different profit margins. If you were the marketing director, how would you use this information? What would you need to know to make a decision?"

Problem-solving:
"In Project 1, you encountered missing data in the customer age variable. How did you handle this? What are the pros and cons of your approach?"

Technical communication:
"Explain in plain language, as if you were talking to the Chief Marketing Officer, what a logistic regression coefficient tells us about the relationship between advertising spend and conversion rate."

This assessment approach has several important features. First, it is credible and authentic. Students understand that they are being evaluated on skills that matter in real jobs. Unlike a written exam on statistical theory, which MBA students might view as a hoop-jumping exercise, a mock job interview reflects genuine professional evaluation. This authenticity increases motivation and learning.

Second, it is comprehensive and difficult to game. A student cannot prepare a canned presentation and deliver it unchanged in a mock interview. The interviewer (instructor) asks follow-up questions, probes inconsistencies, and steers the conversation to areas of assumed weakness. A student who has not engaged meaningfully with the material will be exposed. Conversely, a student who has engaged deeply will find the interview energizing and will often emerge feeling they've demonstrated genuine competence.

Third, it is individually differentiating. While group projects provide evidence of collective analytical work, the mock interview clarifies individual contribution and understanding. This serves fairness in grading (ensuring that students are evaluated on their own learning, not their groupmate's contributions) and also provides diagnostic information about which concepts are well-understood across the cohort and which require reteaching.

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Fourth, it operationalizes the learning objective. The course's primary stated goal is to develop students who can "understand and clearly explain technical results to a managerial audience." The mock interview is a direct assessment of this capability. It is not a proxy measure (like a coding test or a written report); it is the actual skill being developed. This alignment between learning objectives and assessment creates powerful incentives for meaningful learning.

The mock interview also indirectly enforces the data ethics constraint. During interviews, students are asked to describe their data and their analytical process. If a student has uploaded data to ChatGPT, they may be reluctant to disclose this fact, or they may describe the upload in a way that reveals misunderstanding of the confidentiality issues involved. Thoughtful questioning can surface these concerns. More importantly, students know that they will be interviewed by an instructor who values ethical practice, which reinforces the cultural norm that uploading data is a serious mistake.

PRACTICAL IMPLICATIONS: PREPARING STUDENTS FOR PROFESSIONAL ROLES

This pedagogical approach has concrete benefits for students' professional trajectories. Graduates of this course are well-positioned to land marketing analyst roles.

The students develop functional technical skills. They have written real R code, debugged errors, and deployed analyses on realistic datasets. They have received rapid, context-specific feedback on their code through ChatGPT, accelerating their learning. They are not paralyzed by coding syntax or intimidated by new packages.

Students have demonstrated communication ability. Through three presentations and a mock interview, they have practiced explaining technical findings to non-technical audiences. They have received feedback from an experienced instructor playing a hiring manager role. They can articulate not just what they found, but why it matters and how it should influence decisions.

The students have internalized ethical practices. They have learned that data stewardship is non-negotiable, not through punishment or restriction, but through authentic professional modeling and the lived experience of preparing for real job interviews where ethical practice would be assumed.

Finally, the students develop a realistic understanding of AI's role in their work. They have used generative AI as a tool for accelerating learning, not as a replacement for learning. They understand both its power (immediate assistance with code and explanation, ability to suggest code structure for abstract analytical problems) and its limitations (it can make errors, it can't analyze your actual data, it doesn't substitute for understanding). This nuanced view is more realistic than either "AI is dangerous and should be avoided" or "AI can do most of the work."

By the end of the course, students have conducted sophisticated analyses, communicated those analyses to professional audiences, and had those analyses critically evaluated by experienced practitioners. They begin to see themselves as marketing analysts, not as MBA students taking a class. This identity shift is subtle but powerful.

CONCLUSION: A PRACTICAL MODEL FOR ETHICAL AI IN MARKETING ANALYTICS EDUCATION

This paper contributes by presenting a concrete, classroom-tested model for integrating generative AI into an MBA marketing analytics course in a way that simultaneously accelerates technical learning and safeguards data ethics. The core design choice is to explicitly permit AI use for code and explanation while prohibiting data uploads. This gives students realistic practice using AI to accelerate their work under the kinds of constraints they will face in industry.

The assessment architecture translates this principle into practice through three authentic group projects and an individual mock job interview, ensuring that any AI assistance is filtered through genuine understanding, clear communication, and professional judgment. This combination of a sharp data-ethics constraint and AI-resilient, simulation-based assessment offers a replicable template for instructors who want to move beyond abstract policy statements and redesign courses around how analysts will actually work with AI-enabled tools.

Using the approach described here, students learn to use generative AI as a routine part of their analytical workflow while treating data stewardship as a non-negotiable professional norm. Graduates leave with a combination of

technical fluency, ethical judgement, and managerial communication skills that they can apply throughout their careers.

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Teaching with ChatGPT in Accounting Education: Evidence from a Discussion-Forum Assignment

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ABSTRACT

This study examines an instructional innovation that integrates generative AI into accounting education through a structured discussion-forum assignment. In the activity, students first asked ChatGPT to generate a response on a topic they already understood well and then asked it to respond to the same topic after providing more detailed background information, allowing them to compare how prompt specificity influenced the quality and usefulness of the AI-generated output. A post-assignment survey conducted across three accounting courses (n = 54) indicated that the activity was well received and that many students viewed the more specifically prompted response more favorably than the initial response. The assignment offered students a structured opportunity to evaluate the accuracy, relevance, and usability of AI-generated content while exploring the relationship between user input and AI performance. This study contributes to accounting education by offering classroom-based evidence that generative AI can be integrated into instruction in ways that emphasize critical evaluation, prompt development, and informed professional judgment.

Keywords: generative AI, ChatGPT, accounting education, prompt specificity, classroom innovation

INTRODUCTION

Generative AI tools such as ChatGPT have created both opportunities and challenges for higher education. In accounting classrooms, these tools can quickly generate written responses, summarize information, and support idea development, but they can also produce incomplete, inaccurate, or misleading content. As a result, the central pedagogical question is no longer whether students will encounter AI-assisted tools, but how instructors can integrate them in ways that promote critical thinking, responsible use, and informed evaluation of AI-generated output.

This study examines a classroom-based instructional innovation designed to address that question through a structured discussion-forum assignment. Rather than treating ChatGPT solely as a threat to academic integrity or as a passive productivity tool, the assignment positioned it as an object of analysis within the learning process. Students were asked to compare responses generated on the same topic under two prompting conditions, an initial general prompt and a second, more detailed prompt, to evaluate how prompt specificity influenced the accuracy, relevance, and usefulness of the output. In doing so, the activity encouraged students to consider not only the capabilities of generative AI but also the importance of user input, critical judgment, and careful interpretation of technology-generated information. Specifically, this study addresses two research questions: (RQ1) Do students rate AI output generated from a more specific prompt more favorably than output generated from a general prompt? And (RQ2) How do students perceive the usefulness and usability of generative AI after completing the structured comparison activity?

The following documents a practical, replicable approach to integrating generative AI into accounting instruction that aligns with disciplinary expectations for precision, analytical reasoning, and evaluation of information. In accounting, where professional decisions often depend on the interpretation of imperfect information, helping students critically assess AI-generated content is an increasingly relevant instructional goal.

PREVIOUS STUDIES

Generative AI can answer questions, assist with tasks such as composing emails and essays, and provide translation or summarization. Prior literature suggests that these tools can make education more personalized and interactive, improve student engagement, and reduce instructor workload when used thoughtfully (Baidoo-Anu and Ansah, 2023; Kasneci et al., 2023; Grassini, 2023). Review work has also shown that the effect of ChatGPT on learning depends heavily on how activities and assessments are structured (Lim et al., 2025; Lo, 2023; Wang and Fan, 2025).

Conversely, literature consistently identifies important risks. Generative AI can produce biased, incorrect, or fabricated information, and even strong outputs can be difficult to verify without subject-matter knowledge (Kocoń et

al., 2023; Grassini, 2023). Concerns also include plagiarism, overreliance, and the possibility that AI use may weaken critical thinking when it substitutes for student judgment rather than supporting it (Gerlich, 2025; Tian and Zhang, 2025). Research on bias and fairness further underscores the need for careful evaluation of AI-generated content rather than uncritical acceptance (Gallegos et al., 2024).

Taken together, this literature suggests that the most effective pedagogical use of generative AI is not a substitute for students' critical thinking, but a tool that augments it through guided classroom integration. The instructional activity in this study was designed with that goal in mind by positioning generative AI as a tool to support, rather than replace, student thinking and instructor-guided learning (Ausat et al., 2023). This approach is also consistent with experiential learning theory, which emphasizes learning through experience, reflection, and the refinement of judgment (Kolb, 1984).

CLASSROOM INNOVATION: STRUCTURED DISCUSSION-FORUM ASSIGNMENT

The instructional innovation examined in this study centers on an assignment designed to help students evaluate how prompt specificity influences the quality and usefulness of generative AI output. Students first asked ChatGPT to generate a response on a topic that they already understood well. They then asked the tool to address that same topic again after supplying five sentences of more detailed background information, creating a direct comparison between output generated from a general prompt and output generated from a more fully specified prompt. For example, a student working in the dairy industry began with a general prompt: "Write a 500-word essay on the dairy industry." The initial response was accurate but broad, covering common products, the animals involved, and high-level economic pressures. The student then refined the prompt by adding five sentences that narrowed the focus to the specific economic challenges and volatility currently facing the industry. After reissuing the request, the second response was noticeably more focused and concrete, organizing the discussion around those issues and drawing on more specific supporting evidence. Comparing the two outputs side by side made the effect of prompt specificity readily apparent.
This design positioned ChatGPT as an object of analysis rather than as a substitute for student work. Students were required to compare the two responses and evaluate their accuracy, relevance, and usability. In doing so, they were asked to explore how the quality of user input shapes the quality of AI output and to consider whether more precise prompting produced a more useful response. To structure that comparison, students evaluated each response against three criteria: accuracy (whether the information was factually correct and free of fabricated or misleading claims), relevance (whether the response addressed the specific topic and emphasized the points that mattered most), and usability (whether the output was clear, well organized, and serviceable as a first draft). Students then assigned an overall quality rating to each response using a seven-point scale, ranging from 1(Very Good) to 7 (Very Poor). This approach allowed the outputs from the general-prompt and refined-prompt to be compared directly.

The assignment was intentionally simple and replicable. It did not require advanced technical knowledge, specialized software beyond access to ChatGPT, or extensive instructor preparation. At the same time, it directed students toward skills central to accounting education: precision in communication, careful evaluation of information, and informed judgment about reliability.

RESULTS AND STUDENT PERCEPTIONS

A brief post-assignment, 7-point Likert survey administered across three accounting courses yielded 54 usable responses; for these items, lower scores indicate more favorable responses. Overall, students responded positively to the activity: 94.4% expressed at least some agreement that they enjoyed using ChatGPT ($M = 1.83$, $SD = 0.95$), and 98.1% expressed at least some agreement that it was easy to use ($M = 1.56$, $SD = 0.66$). Output quality ratings improved from the general prompt ($M = 2.72$, $SD = 1.20$) to the more specific prompt ($M = 2.20$, $SD = 1.45$), with 59.3% of students rating the specific prompt's output more favorably than those generated by the general prompt's.

These results are consistent with the assignment's instructional purpose: students were asked not simply to use a new technology, but to compare outputs under different prompting conditions and evaluate which response was more useful. Open-ended comments reinforced these results, with students frequently noting that clearer prompts produced better outputs and emphasizing the need to verify information and exercise independent judgment. Although the findings are best interpreted as classroom-based evidence tied to a specific assignment, they suggest that the activity introduced students to AI use while reinforcing prompt design and critical evaluation.

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CONCLUSIONS AND IMPLICATIONS

This activity is particularly relevant to accounting education because students in this field routinely work with incomplete, imperfect, or potentially misleading information. Professional effectiveness depends not only on producing answers but on evaluating the quality of available information, identifying weaknesses, and making defensible judgments. The discussion-forum activity directly supports these habits by asking students to assess the accuracy, relevance, and usefulness of AI-generated content.

The assignment also highlights the importance of input quality. In professional settings, the usefulness of technology-supported output often depends on how clearly a problem is framed and how precisely the relevant background is communicated. By comparing a general prompt with a more fully specified prompt, students practiced the kind of precision in communication that matters in accounting work.

Because generative AI can produce inaccurate or biased content, instructors should provide clear written guidance for classroom use. A minimal course policy can distinguish permitted and prohibited uses, set disclosure expectations, require verification of claims with course materials or credible sources, request process evidence such as drafts or reflections, protect privacy by prohibiting sensitive data in external tools, and provide an equitable non-AI alternative when needed. These guardrails help preserve the assignment's educational value. They keep the focus on students' reasoning and judgment while reducing the risk that AI use becomes a shortcut that replaces learning.

This study reframes classroom use of generative AI away from general advocacy and toward a specific, evidence-based instructional design. The discussion-forum assignment described herein gives students a practical way to examine how prompt specificity affects the quality of AI-generated output and to evaluate that output with greater precision and professional judgment. The central contribution here is the documented instructional activity, supported by survey-based evidence.

Through comparison, exploration, and judgment, the activity provides a replicable method for integrating generative AI into accounting education that keeps the focus on student reasoning. It builds skills in prompt development and critical evaluation without treating the tool as a replacement for student thinking.

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An Integrated Approach to Developing Students' Ethical Values for Accounting Fraud Prevention: Aligning Course Learning Objectives with the Elements of Fraud

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ABSTRACT

Fraud remains a significant and growing concern across organizations worldwide, impacting companies, shareholders, investors, and individuals. Most often, a lack of ethics, values, and moral weakness leads individuals to commit fraud. This paper uses the Fraud Triangle as a framework to understand fraud and connect teaching ethical decision making and values throughout the program of study accounting and business. The goal is to prepare students to anticipate, prevent, and recover from accounting fraud in the workplace. Through the addition of ethics-based learning objectives throughout their courses and an interdisciplinary approach, we support the idea that the role of teaching ethical values, helping students build their morals and ultimately high integrity, helps students to mitigate or prevent fraud.

Through curriculum mapping and an interdisciplinary lens, this research proposes enhancements to accounting education that emphasize the importance of building ethical values in students throughout their studies that can lead to high integrity as an anti-fraud strategy. Rather than confining ethics to standalone courses, this paper proposes that integrating ethical learning objectives throughout accounting programs builds high ethical values and professional integrity in students. Integrating the suggested ethical learning objectives from this paper throughout accounting and business courses through curriculum mapping will assist business schools in implementing a culture of ethical decision making and integrity building in their students.

Keywords: Accounting education, fraud prevention, students' ethical values, fraud triangle, curriculum integration, professional ethics, interdisciplinary accounting education

INTRODUCTION

Fraud remains a significant problem in business and organizations, and evidence suggests it is not decreasing. The demand for students to understand accounting from the perspective of fraud is critical, both from the perspective of a student and as a future professional. Understanding how strong the impact of ethical values and decisions of humans is on committing fraud can help us to potentially mitigate and prevent fraud; understanding the individual is key in understanding the rationalization of decisions made. Fraud Prevention and the accounting fraud triangle are commonly taught in fraud related accounting courses. We strive to teach our students not only foundational knowledge and critical thinking in accounting and business education, but also the ability to make ethical decisions in difficult situations. Much fraud derives from situations where right and wrong become blurred, where integrity is questioned and where individual values are weakened. The individual human values, manager decision making, leadership, behavior motivation, pressure for short term results are taught in the business courses of organizational behavior, human resources management, and strategic management. Business ethics courses are taught at both the start and end of a business degree, yet there is not a strong emphasis on personal values, ethical decision making and integrity throughout the entire program, which we discuss as needed, through an interdisciplinary perspective.

Students are prepared to recognize fraud with exercises about individual human values (Does Money Motivate?), a behavior motivation case about Wells Fargo (Cascio, 2026), an exploration in grey areas of ethics (Cascio, 2026). The Human resource justice chapter (Cascio, 2026) on whistleblowing asks students, "What would you do if you found someone was cooking the books?" An example of accounting fraud includes a school district director using school funds for personal use (as seen in the 2020 HBO movie Bad Education). Other basic examples of fraud that students might run into include a medical office employee pocketing patient co-pay, a county clerk personally taking the cash for certificates, and a charity event that hid proper accounting books.

It is expected that AI (artificial intelligence) will increase fraud with the ease of creating realistic looking documents (for example, fake receipts). On the other hand, AI will help to catch fraud patterns. As the center of fraud is unethical, decisions, lack of values and integrity. Thus, it is important to understand how faculty can help students develop the skills and knowledge throughout their program of study ethical decision making, strong values, and integrity.

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All business students need to know the reality of the prevalence of fraud. One guest alumni speaker who works in accounting fraud detection warned students (Center for Business and Applied Ethics, 2026): *Always ask for a receipt; if no receipt is given, be on the look-out for fraud!* Management decision making, and the requirement for employee honesty, are topics often taught in human resource and ethics courses, but there is a lack of ethical considerations spread throughout the program of study. The study examines how individual and organizational values contribute to or prevent fraudulent behavior by reviewing fraud theory development from the fraud triangle through the fraud pentagon and analyzing the role of teaching ethical values in mitigating employee fraud.

This paper began within an interdisciplinary research group supported by the NEH (National Endowment for the Humanities). Business and Humanities researchers met over a year with discussions about understanding human values, creativity, and current culture (Edgell & Lee, 2023). The questions for this paper grew out of these interdisciplinary discussions:

- What are the human individual values associated with business accounting fraud?
- How can students better understand what motivates employees and managers to commit fraud?
- What are the core individual values exhibited by those who commit fraud to help bridge the gap? between the time individuals are tempted to commit fraud and when they follow through with the act.
- What do case studies of fraud tell us?
- How to understand the breakdown of values at the core of the individual and the circumstances that lead to this breakdown. Why do good people get caught up in behaviors that lead to fraud?

The outcome of this project focuses on teaching materials and program updates that can be implemented across a range of accounting and business courses. Cases and exercises and guest speakers address what causes people to engage in fraud behaviors. Rooted in a multidisciplinary perspective, this includes accounting, fraud examination, and strategy, beginning with personal values, then examining pressure for results in organizations, and culture within organizations. A goal of this paper is for more attention to be given to preventing and addressing accounting fraud in human resource management, organizational behavior (and leadership), and traditional ethics courses (and of course in accounting courses).

PROBLEM STATEMENT

There are several research questions that relate to the area of values in fraud creation. This includes first understanding the factors that drive individuals to commit fraud, whether we are helping students understand values both individually and of potential employers, how we can assist students in ethics education, and what values accounting students currently hold. This could potentially bring rise to students creating high moral values for themselves, personally, which they will carry with them throughout their career.

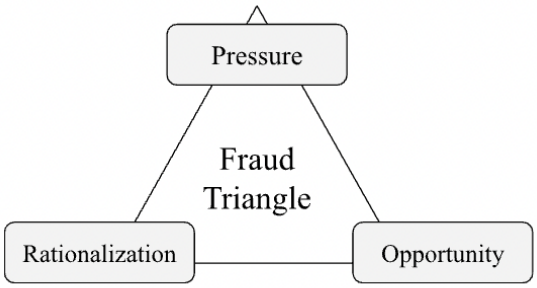
The following questions guide this concept paper: (a) What are the main factors that drive individuals to commit fraud? (b) Are colleges of business doing enough in their courses to help students define what values are, to explore students' own values, and to see the importance of values? (c) What are recommendations to create course learning objectives that teach values to accounting students? (d) What are some typical values that accounting students hold currently? (e) What is the difference between individual values and organizational values, and are individual and organizational values congruent?

LITERATURE REVIEW

Dimensions of Fraud

The literature has studied the concept of fraud theories for several years. From these studies, theories have arisen surrounding the aspects of fraud. The early theory of fraud includes the fraud triangle, developed by Cressey (1953) as shown in Figure 1, which incorporates pressure, opportunity, and rationalization. The fraud triangle has remained a staple in the accounting industry and was built upon by Wolfe and Hermanson (2004) with the fraud diamond. The fraud diamond incorporates the traditional fraud triangle aspects of pressure, opportunity, and rationalization, while also considering capability (Wolfe & Hermanson, 2004).

Figure 1. The Fraud Triangle (Cressey, 1953)



Continuing in research, Crowe Horwath (2011) further developed the fraud triangle and diamond into the Fraud Pentagon, incorporating pressure, opportunity, rationalization, capability, and the inclusion of arrogance and competence. It is important to understand the development of these theories throughout time and what current research tells us. Thus, we can see the development of additional characteristics and supportive reasoning of why individuals commit fraud throughout time.

With the consideration that the dimensions of fraud have been built upon for several decades to understand that there is much we do not know about the behaviors of those who commit fraud. Yet, one thing we do know is that this must be taught in business and accounting education to heighten the awareness that it is not always clear who may commit fraud. It is also important to emphasize to students that there are dimensions that can help explain the reasons why individuals commit fraud and to utilize real-world cases and scenarios to provide students with the most realistic possible experiences in fraud. One reason for an emphasis on fraud in this area is that often fraud derives from unethical behavior and lack of integrity. Two values that students must learn to acquire and strengthen throughout their studies as business and accounting students.

Ethical Values

Previous research has investigated the need for ethical value consideration in fraud (Said et al., 2017; Mohottige et al., 2018; Sahla & Ardianto, 2023). Through these studies, it is further supported that students need to understand the importance of ethical values throughout their education. In doing so, students will be able to identify values that can help create an ethical foundation for their future careers.

Said et al. (2017) integrated ethical values into the fraud triangle theory in assessing employee fraud to determine the impact of ethical values related to employee fraud. Through this study, it was found that opportunity, rationalization, and ethical value contributed significantly to the occurrence of fraud. Said et al. (2017) found a negative relationship between ethical values and employee fraud occurrence; thus, high ethical values result in fewer employee fraud occurrences. Their findings contribute to the idea that individuals' ethical values can impact whether employees follow organizational policies. This study contributed to the literature demonstrating that high ethical value is crucial to mitigating employee fraud and the importance of strong internal control.

In the study by Mohottige et al. (2018), the fraud triangle theory was discussed and extended upon by incorporating ethical values of employees. Aiming to integrate the theory that ethical values of employees should be considered in assessing employee fraud risk, Mohottige et al. (2018) identified the New Fraud Model, which centers on ethical values, in addition to the opportunity, rationalization, capability, and pressure of the fraud diamond. It was concluded that high ethical values reduce the likelihood of fraud, emphasizing the importance of considering ethical values in an organization.

In addition, Sahla and Ardianto (2023) focused on examining fraud tendencies from the perception of external auditors. In this study, they focused on five components of the fraud pentagon, including pressure, opportunity, rationalization, competence, and arrogance, with a moderating variable of ethical values. Although this study found that competence and arrogance have significant influence in perception of fraud tendency, it is very important to note that ethical values moderate the relationship between competence and arrogance. It was concluded that ethical values prove to be an anti-fraud strategy.

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THEORETICAL FRAMEWORK

Virtue Ethics

Virtue theory has been a longstanding foundation for the consideration of ethical issues in accounting. Mintz (1995) began to describe virtue theory in relevance to accounting education based on the workings of Pincoffs (1986). Mintz (1995) describes the objectives of virtue education, including teaching students about virtue and exposing students to situational experiences that involve moral responsibilities as accountants. Pedagogical methods described include case studies, collaborative learning, and role-playing.

Mintz (2006) further describes virtue ethics as an agent-based approach concerning character and motivations of the individual. This focuses on characteristic traits that result in individuals taking actions, centered on the values of professional accountants. This is central to the present argument that students must be exposed to ethical considerations and values throughout their educational experiences. This includes building traits that cannot be morally broken in scenarios that can occur in organizations, such as a poor tone at the top or management pressures.

West (2018) describes the consideration of ethical scandals in the accounting field and the recurrent scandals being a proponent of ethics incorporation in accounting curriculum. Yet, although there are some ethical considerations in accounting majors, it is often not at the level of interactive learning of ethics, such as real-world scenarios of ethical decisions, outside of business ethics classes. The fraud triangle, diamond, and pentagon emphasize the importance of understanding ethical situations in which these types of scenarios should be well integrated into accounting students' education.

There is a central concern that for many years ethical concerns have been at the forefront of business and accounting, yet fraud continues to rise at exponential rates. Based on this consideration, this paper emphasizes the importance of ethical education starting at the undergraduate level at a more in-depth experience for students, spanning throughout many courses. Allowing students to create values that will withstand unethical situations would make students less susceptible to environmental pressures that can lead to fraud.

Ethical Behavior, Individual Morals and Values

The focus of this paper is to bring attention to the importance and value of ethical behavior and individual values that shape decision making in business and accounting students. In organizations, having employees who are of high ethical value is beneficial to the organization. Individuals who make ethical decisions, even when put in difficult situations, are high value employees, as they can save the organizations from other employees committing fraud, costing the organizations large amounts of money.

The interdisciplinary perspective is critical in understanding the impact of high ethical morals, personal values, and decision making. This paper argues that value creation does not solely arise from organizational output and productivity, but also from human values and organizational culture. There is value in hiring employees who hold a high standard for their own personal values. Without a culture of honesty and upstanding human values, organizational value will inevitably decrease, if not crash due to the opportunities of fraud occurrence. Thus, business and accounting students must understand that there is potential for unethical situations to arise in the workplace and how to maintain their moral compass throughout situations that can occur.

Students who have exposure to understanding ethical decision making, personal values, and ethical morals will be more prepared for the potential real-world situations they may face. This can include management attempting to expose them to unethical practices in an organization, a co-worker who may be struggling with personal finances who feels pressure to commit fraud, and they do not know how to address this and many other situations that can occur in the workplace. There are opportunities and pressures that occur in the workplace that they may have never expected, and the area between right and wrong can potentially blur at times. Thus, students having exposure to simulations and scenarios of unethical environments may be better prepared and equipped to handle these situations in the workplace, ultimately leading them to employees of high integrity.

CURRICULUM METHODS AND TECHNIQUES

Environment and Application

This curriculum enhancement is designed for undergraduate accounting programs within colleges of business. The application focuses on integrating ethical decision making, enhanced opportunities for development of students'

individual morals and values, throughout the accounting curriculum rather than confining ethical considerations to standalone ethics courses. The critical difference is implementing ethical considerations throughout the entire curriculum, rather than isolated in one ethics business course. The environment encompasses both traditional classroom settings and online learning modules, recognizing that students need exposure to ethical decision-making across multiple courses and formats throughout their program.

Elements of the Curriculum Enhancement Technique

Table 1 presents recommendations where fraud topics can be taught across the accounting curriculum. Highlights from Table 1 include cases and guest speakers in traditional ethics courses, values in career exploration in human resources management, causes of unethical behavior in strategic management courses, and recommendations for humanities courses.

Although curriculum may not directly address fraud, courses and objectives may very well relate to fraud cases. This includes understanding leadership styles and corporate culture (the tone at the top; pressure), the path for whistleblowers, ethical policies and outcomes of unethical behavior, and organizational structure (segregation of duties).

Proposed Learning Objectives Integrated Across Courses

The following learning objectives provide a foundation for integrating ethical values and fraud awareness across the accounting and business curriculum. Each is designed to be embedded within existing coursework rather than confined to a standalone ethics course. Students will be able to:

- Examine their personal values system and articulate how those values inform professional decision-making.
- Recognize personal values as foundational drivers of both ethical and unethical choices in accounting practice.
- Analyze the relationship between individual values and organizational culture, identifying points of alignment, and conflict.
- Evaluate accounting fraud cases—across corporate and small-business contexts—to identify the ethical failures and situational pressures that contributed to each.
- Apply risk-awareness strategies to protect themselves from complicity in fraudulent situations in professional settings.
- Identify incremental ethical compromises that constitute a "slippery slope" toward fraudulent behavior.
- Explain how repeated exposure to unethical organizational practices leads to normalization, and its implications for individual and organizational integrity.
- Recognize the role of decision-avoidance and rationalization in enabling unethical behavior to take hold.
- Explore values in the context of a career exploration exercise—examining priorities such as financial security, work-life balance, and workplace environment—as part of career planning and professional identity development.
- Assess the fraud implications of emerging technologies, including artificial intelligence, in accounting and financial reporting contexts (e.g., AI-generated falsified documentation).
- Apply knowledge of common fraud risk indicators—weak internal controls, inadequate segregation of duties, management pressure, poor ethical tone at the top, and insufficient oversight—to identify vulnerabilities in organizational scenarios.

These objectives are intended as starting points for program-level curriculum review. Table 1 illustrates how objectives map to specific courses across the accounting and business curriculum, which also connect to the elements of fraud. Faculty can also leverage AI in producing study guides and discussion questions related to their course topic that integrate ethical decision making. Ethical considerations of AI use is important as well in the classroom, and much of this is at the forefront of the discussion of educational use.

Benefits and Expected Pedagogical Achievements

The benefits of implementing an interdisciplinary curriculum into accounting programs are multifaceted. First, students will develop a stronger ethical foundation that can withstand workplace pressures. Research has demonstrated that high ethical values reduce the likelihood of fraud (Said et al., 2017; Mohottige et al., 2018), suggesting that educational interventions focused on values could produce similar protective effects.

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Second, the interdisciplinary approach connecting business and humanities perspectives provides students with a more comprehensive understanding of human behavior in organizational contexts. This broader perspective helps students recognize the complexity of ethical situations they may encounter in their careers. It is critical for students to understand how they can develop a high standard of ethics, through their own values and morals.

Third, exposure to real-world cases and fraud risk factors throughout the curriculum creates heightened awareness that may help students identify warning signs earlier in their professional lives. This can be done through various teaching techniques, including simulations, evaluations of fraud cases, and collaborative efforts where teams are formed in the classroom and situations are presented from the professor where the teams have to determine what may or may not be ethical.

Simulations can be a great teaching tool in teaching ethical behavior. The inclusion of simulations where the students are immersed in scenarios that include unethical environments and decisions can help to prepare students for situations that they may face in the real world. Making decisions in scenarios and understanding the implications of these decisions can be helpful in showing students the types of decisions they could be forced to make and also learn how there are situations where ethical lines are blurred. It is much better to face these situations throughout their educational experiences to prepare themselves for their future career.

Limitations

Several limitations should be acknowledged regarding this curriculum enhancement approach. First, the effectiveness of ethical decision-making learning objectives integrated throughout many courses in business and accounting education in preventing actual fraud behavior has not been empirically tested in this study. Second, implementation challenges may arise from faculty training needs, time constraints within existing curricula, and varying levels of institutional support for interdisciplinary approaches.

Assessment and Student Performance Evaluation

Evaluation of student learning in ethical decision making can incorporate multiple assessment approaches. Traditional methods such as case analyses and written reflections can assess students' understanding of ethical concepts and their ability to apply frameworks to complex situations. Role-playing exercises and scenario-based assessments can evaluate students' decision-making processes when faced with ethical dilemmas.

In addition, evaluation should be conducted to determine the impact of morals and values on ethical decision making and ultimately ethical decision making on integrity. The relationship between morals and ethics, decision making, and an individual of high integrity is described throughout this paper and could be researched and further tested. This is the planned trajectory of implementing interdisciplinary teaching and learning by developing students' morals and values, applying this to making ethical decisions, ultimately leading them to become a person of high integrity.

DISCUSSION

The purpose of this paper is to help students prepare for the realities of fraud in the workplace. The goal is to help our students not get caught up in workplace fraud through the addition of ethical decision-making development spread throughout their program. This paper makes recommendations to introduce students to exploring their values, the basics elements of fraud (the fraud triangle), and to develop skills for decision making (See Table 1). Table 1 recommends expanding the ethical side of the curriculum to a larger focus on fraud and human behavior. Individual values are explored in career planning, and values underpin business corporate culture, leadership, and individual motivation. How values may change over time is a critical piece in understanding how individuals commit fraud.

Fraud is constantly in the business news and faculty, and students will want to continue these discussions with questions such as these: (a) How can a valued organization be recreated after a downfall? (b) How can trust be created in programs meant to help individuals in need when others have successfully defrauded these systems? (c) Does remote work impact fraud behaviors? (d) How is artificial intelligence increasing fraud complexity and blurring lines between right and wrong? (e) What role do business college professors have in teaching students to protect themselves from getting caught in fraud behaviors?

Table 1: Mapping of Ethics and Fraud Topics Among Business, Accounting and Interdisciplinary Courses

Course	Topics	Fraud Triangle Element
Ethics Course	Ethics policies, ethical behavior, integrity, cases of actual organizations; guest speakers from Lockheed Martin (strict ethics policies), state auditors (how to discover fraud, regional cases)	Rationalization and Opportunity *Individual values and ethics, and integrity can be linked to **justification** and the **opportunity** to commit fraud present itself. A high standard of ethical behavior and integrity are critical to not allowing oneself to commit fraud, even when this can appear to be rationalized.*
Strategic Management	Whistleblowing, career exploration, organizational factors that cause fraud such as pressure for results, culture, leadership, lack of controls), history of wrongdoing, ethical decision making	Pressure and Opportunity *Many times, the tone at the top can dictate if fraud has the **opportunity** to occur. For example, management **pressure** can also contribute to employees committing fraud to meet expectations. Ethical decision-making skills are critical in defeating the opportunity to commit fraud to meet the pressures of upper management.*
Organizational Behavior/ Human Resource Management	Individual differences in values, leadership styles, corporate culture; what to do if someone is suspected of "cooking the books"?, unintended consequences on employee behavior such as Wells-Fargo Case; introduction to values exercise: What do you seek in a job?, career exploration exercise based on exploring values (e.g. importance of family, security, desire for money); Scenario Exercise: How Ethical are you? Describe some grey areas you have seen in organizations.	Rationalization, Pressure, Opportunity *Individuals can often **rationalize** committing fraud by a lack of internal controls **(opportunity)** and ethical corporate culture. If it appears to be acceptable to top management, other employees may **rationalize** fraud as acceptable as well. Again, there can be pressures from upper management contributing to an employee committing fraud. Integrity is critical in combatting management pressure to perform at a higher rate or meet near impossible standards.*
Managerial/Cost Accounting	Management decision making, ethical considerations in cost analysis	Rationalization *The tone at the top and the level of pressure that management instills in employees in decision making and expectations can create the illusion that fraud can be **rationalized**. Ethical behavior and decision making can be critical in individuals to not allow pressure to question their character.*
Interdisciplinary Humanities	Courses such as psychology and sociology can be implemented with a focus on ethical decision making, ethical values, and integrity. This can help students understand how sometimes people who seemingly were moral individuals suddenly commit fraud and the psychology behind these decisions. Interdisciplinary work can integrate humanities and business.	Rationalization, Opportunity and Pressure *The mental aspects behind individuals who commit fraud are critical in understanding how notably ethical individuals end up committing fraud. The psychology behind **rationalization**, **opportunity** and **pressures** are critical in understanding how these aspects can defeat personal ethical standards and integrity.*

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Possible Extensions and Applications

Focus groups or surveys of students would be beneficial in understanding students' perspectives on the importance of ethics and values both prior to the inclusion of additional learning objectives and post. Understanding students' perspectives is crucial for developing learning exercises. For example, where do students see grey areas in fraud? Is charging for time not actually worked while working from home (remotely), a grey area? What is student reaction to an employee taking Family Medical Leave and then using leave to take a vacation? Understanding students' level of ethical decision making and how this can be strengthened through their coursework can help improve areas to include the suggested learning objectives in this paper.

CONCLUSION

This paper examined the landscape of accounting education from an interdisciplinary perspective, emphasizing the importance of integrating personal values, ethical decision making, and integrity in education throughout the accounting curriculum. The review of fraud theory development from the fraud triangle through the fraud pentagon demonstrates the evolving understanding of factors contributing to fraudulent behavior. Research consistently shows that ethical values play a crucial role in mitigating fraud risk, supporting the argument for enhanced focus on ethical decision making and development of high moral values for students in accounting education.

The proposed curriculum enhancements, including adding values, ethics and integrity through additional learning objectives across coursework, with specific learning objectives and the integration of ethics, fraud risk behaviors, values and integrity across coursework, offer practical approaches for accounting programs seeking to strengthen students' ethical foundations. While challenges exist in implementation and measurement, the potential benefits of producing graduates with stronger ethical values and greater awareness of fraud risk factors warrant continued attention to this area.

It is hoped this paper will serve to highlight the importance of students' learning to develop high ethical standards and ultimately recognize and prevent fraud. A set of learning objectives is offered to spark program improvement. By bridging humanities and business perspectives, accounting education can better prepare students to maintain integrity throughout their professional careers, ultimately contributing to reduced fraud occurrence and healthier organizational cultures.

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Workplace Conflict and the New Employee: Learning to Deal with the Pushy, the Grumpy, the Entitled, and the Gossips

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ABSTRACT

Organizations have long expressed concerns about recent college graduates' unrealistic expectations and lack of "soft skills" for handling common workplace conflicts. This exercise is designed to help students learn about the typical conflicts they are likely to encounter as new employees and to apply the conflict resolution models discussed in organizational behavior or negotiation classes to these situations. It is intended as a supplement to a unit on conflict and conflict resolution. It is appropriate for an undergraduate or graduate course in Organizational Behavior or Negotiations, as well as for a workshop preparing students for the workplace.

Keywords: conflict, conflict resolution, negotiation, remote work, organizational behavior, recent graduate

INTRODUCTION

Negotiation classes are among the most popular in undergraduate business programs, in part because of their immediate and broad applicability to students' lives both in the present and near future (Thompson et al., 2022). For business students, a negotiation course will likely focus, at least in part, on negotiations in the workplace. As with life in general, the workplace involves countless interactions among individuals whose interests are not aligned; conflicts are inevitable. These conflicts can involve interpersonal conflicts with team members, coworkers, bosses, subordinates, customers, clients, competitors, and suppliers.

Not surprisingly, students who are new to the workplace cite dealing with conflict as one of the most stressful and challenging aspects of adjusting to the workplace. About a third of those surveyed experience workplace conflict daily while also expressing concern about their lack of skills to deal with this conflict. (Thornton and Fletcher, 2024). Inexperienced students will soon encounter this reality.

On the other side employers consistently rank negotiation and conflict management skills among the top competencies expected of recent graduates (NACE, 2024). This gap between business education in the "soft skills" area and workplace demands is frequently cited (Edmonds et al., 2024; NSLS, 2022). This may be a major contributing factor to a finding that a high proportion of managers of young professionals found this cohort "hard to manage" (Glickman, 2020).

The topic has become even more critical as organizations are moving toward flatter, team-oriented structures where hierarchies and authority become more ambiguous. In these decentralized structures, the need for conflict resolution skills becomes even more salient, as the potential for conflict is increased compared to more hierarchical top-down structures.

Thus, a negotiation or organizational behavior course should include, at least in part, a focus on the kinds of conflicts that occur in the workplace and provide students with some practice thinking about and dealing with these conflicts.

This exercise is designed to expose students to a broad range of interpersonal conflicts (peer-to-peer, manager to subordinate, subordinate to boss) that they might encounter, especially early in their careers. These conflicts are not typically the kind that are escalated to HR; rather, they involve difficult conversations that need to occur for new employees to be feel comfortable in their work settings. This exercise provides opportunities for students to proactively practice approaches to workplace conflicts before such situations are all too real. Several problems in the exercise highlight "new normal" post-COVID issues.

By reading the students' post-exercise journals, we have concluded that placing students in these role-play situations yields greater insights and self-knowledge compared to past experience with assigned readings on the topic. In addition, students appear to be far more engaged than in a lecture/class discussion approach. This conclusion is supported by a recent meta-analysis (Fu et al., 2025).

LEARNING OBJECTIVES: STUDENTS WILL:

- Be exposed to the kinds of conflicts they are likely to experience in the workplace, with particular attention to issues related to recent changes (e.g., remote work).
- Be asked to think about ways to deal with these conflicts.
- Learn approaches to resolving conflicts in these situations.
- Have an opportunity to practice analyzing and responding to real conflict situations
- Explore whether AI can be a source of help in conflict resolution; and
- Apply the course material on conflict to real workplace conflicts.

TARGET AUDIENCE

While the exercise was developed originally for a negotiation course, the topic of workplace conflict (and conflict resolution) is likely to be a major focus in an organizational behavior course or a communications course. The authors feel the exercise is appropriate for an Organizational Behavior or a General Business course as well. Finally, many universities offer one-credit or no-credit courses that help prepare students for the workplace. The exercise is designed as a supplement to the course material on conflict and conflict resolution.

Thus, the target audience is:

- Undergraduate courses in Negotiation;
- Undergraduate course on a unit on conflict resolution in an Organizational Behavior course;
- Career Development courses or workshops;
- MBA or Certificate Programs focused on relatively inexperienced students; and
- A course or unit with mid-career managers dealing with young professionals entering the workforce.

THINKING ABOUT WORKPLACE CONFLICT AND THE NEW PROFESSIONAL

The challenges facing the new professional can be broken down into the following areas.

- Workplace Structure: Examples include an unclear chain of command, dual reporting lines, unclear policies, misaligned or nonexistent goal-setting and performance appraisal criteria, conflicting incentives, and competition for scarce resources.
- Task or Process-Related: Examples include role ambiguity, division of labor, how tasks are approached and divided fairly, how to deal with limited resources, disparities in workload, group and team conflict, and technology glitches.
- Workplace Policies: Examples include inconsistent application of policies such as remote work mandates, vague or undocumented policies, disputes over compliance, differing expectations about dress and other aspects of appearance, and time zone conflicts.
- Generational Differences: Key areas include hot-button issues such as diversity, inclusion, climate change, and political topics. Other differences span the use of social media, varying linguistic and communication styles, and attitudes toward work-life balance.
- Cultural Issues: These include issues within an organization and across organizational boundaries.
- Career and Professional Expectations: Examples include managing former peers, the nature and frequency of feedback, recognition, career progression, micromanagement (either excessive or insufficient), and unrealistic salary expectations.
- Leadership: Examples include distrust of top-down authority or authority in general, and discomfort with criticism (either too much or too little). For a young professional new to a leadership role, challenges include managing former peers and difficulty asserting authority.

In addition, studies have found that the transition from an academic to a professional environment can surface several psychosocial issues. These threats to one's sense of identity, autonomy, competence, self-image, and overall sense of

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well-being can result in high levels of anxiety, self-doubt, depression, and other indicators of well-being (Zayts et al., 2023).

The sources of conflict listed above are not new. However, since the COVID-19 pandemic and the resulting increase of remote work, several additional issues have surfaced as growing problems. Traces of these issues (e.g., challenges in remote work) existed before the COVID-19 pandemic, but the rapid expansion of remote work over the last decade has brought some of them to the forefront.

These include:

- Communication issues: such as problems with effective communication in the virtual world.
- Work styles: such as the challenge of coordinating different work styles remotely.
- Career issues: lack of visibility; blurred boundaries between work and non-work; always being "at work"; lack of career development and mentoring; unrealistic expectations about workplace accommodations and salaries.
- Technology issues.
- Culture and time zone issues; and
- Managing and being managed remotely.

While these factors create very real problems for the individual, the costs to the organization are also substantial in terms of high turnover, low retention rates, and overall reduced productivity (Friesen, 2025).

THE EXERCISE

The exercise is designed to supplement the instructor's unit on conflict management. We assume the instructor is using a textbook unit or supplementary material covering conflict resolution and difficult conversations. The exercise should be appropriate for whatever approach the instructor chooses to use for conflict and conflict resolution.

The workplace scenarios included here have been used in a number of ways in negotiation and organizational behavior classes. We will outline one model for a ninety-minute class. Below is the exercise design we have used most often, but there are many variations of this approach.

Advance Preparation

1. Assign readings on conflict and conflict resolution. Most faculty would do this before the exercise; however, some may prefer to assign this material after the exercise.
2. Assign one or more "problem scenarios" (see Appendix) to each student. Each student is told they are a "negotiation coach" and asked to advise on how to handle the problem. We have had these responses submitted via a form (e.g., a Google questionnaire) that can be shared with the entire class either at the time of submission or later.

The scenarios in the Appendix were created from typical issues managers have discussed with the authors, issues graduates have identified, and problems raised in workplace advice columns, such as those in the New York Times Workologist.

In Class

- (15 minutes) In small groups, students discuss each of their assigned problems; all members of the small group would have a conflict situation around the same theme (e.g., conflicts with co-workers).
- (15 minutes) Have each group share one or more of the problems, including an analysis of the conflict and possible solutions, with the whole class.
- (60 minutes) Collect and synthesize the suggestions for the conflict resolution and integrate them with the instructor's model of conflict resolution.

There are many possible variations of this approach. Below are a few.

- Create role-plays from the examples; have students role-play some conflicts; in small groups, ask students to pick one scenario to role-play.

- Assign the readings after class and use class time to create a model of conflict resolution that will be reinforced by the readings.

A VARIATION INVOLVING AI

We have tried one variation involving AI. In our class of forty students, twelve small groups were divided into three trial subsets.

- Groups in Category A: These small groups were encouraged to use AI to generate responses.
- Groups in Category B: They were told to use Google Search.
- Groups in Category C: These groups were not allowed to use AI but had to generate responses on their own.

While not the direct focus of this exercise, we were able to explore the issues highlighted in a study done at MIT (Kosmyna, 2025). Since our graduates will likely use AI to help resolve the kinds of conflicts presented in this exercise, integrating AI into this exercise provides a good opportunity to explore the benefits and risks of this emerging technology.

DISCUSSION AND DEBRIEFING

The instructor should try to generalize the points that students highlight and integrate them with the conflict resolution model that is being taught. For example, we used two models. One was presented in "Dealing with Conflict" by Amy Gallo, "Guide for Dealing with Conflict" (2017), and "Difficult Conversations" (Stone et al, 2010).

Consider an example from the Appendix: "I *have a manager who consistently addresses me as "sweetie," a term he does not use with anyone else in the team. When I brought this to his attention, he explained that I reminded him of his daughter. I find this behavior uncomfortable and unprofessional. I don't know what to do. How can I negotiate this situation?*"

To guide the discussion, we asked students to put themselves in a position of "coach" to the individual who posed the problem and to apply the model of conflict analysis and conflict resolution. We chose to use the "Difficult Conversations" model (Stone et al, 2010) in order to help this individual understand the nature of the conflict. Then the student/coach is asked to suggest how the individual might try to resolve the conflict. Thus, we have students analyze the conflict in terms of:

- What is the nature or type of conflict; is the conflict based on misperceptions, misunderstanding; is there a real conflict; is the real conflict the expressed conflict or is the conflict displaced (it really deals with other issues)?
- What factors might affect the conflict (e.g. organizational culture, gender, generational issues, experience, personal characteristics, cultural norms, values, expectations)
- What are the psychological sources of the conflict (e.g., power, values, interests, self-esteem, autonomy)
- What were the triggers to the conflict?
- Beliefs and Assumptions about the conflict (both their beliefs and thoughts about the other's beliefs)

Students are then asked to recommend a conflict resolution strategy to the problem based on their analysis, including a discussion of what style of conflict resolution is appropriate (confrontation, collaboration, avoiding, etc.), and how their recommendation addresses the issues raised in the analysis.

ADDITIONAL LEARNING ACTIVITIES AND ASSIGNMENTS

Most students have some form of work or internship experience. The authors' University uses the Cooperative Education model; virtually all students in upper classes have had one or two COOPS and thus have workplace experience.

An additional assignment could draw on this experience by asking students to identify a conflict they have experienced and reflect on it using the model discussed in class.

One of the authors uses this exercise in a Negotiations class. In that context, every student is asked to write up a "Nightmare Negotiation." The student is asked to identify a conflict at work that might have turned out well (or not) but that "kept them up at night."

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CONCLUSION

There is a widely recognized gap between the conflict skills needed in the workplace (and life) and the skills our students study, practice, and master in their college education. Both employers and students want closer alignment between employer needs and the college experience [Miller, 2023]

This gap has long been recognized and has only been exacerbated by the pandemic. The "new normal" workplace, with greater levels of remote work and team structures, has further amplified conflict resolution skills related to this "new" workplace..

Learning about and practicing conflict resolution techniques is a highly valuable skill for students. The classroom provides a safe environment to practice conflict negotiation, which is critical for personal and professional growth. Leaning into discomfort is a first step in preparing for the "pushy, the grumpy, the entitled and the gossips," who may be a source of contention and prevent necessary focus on one's job.

This exercise helps students apply academic models of conflict resolution to specific workplace situations. Students should leave the exercise with a more realistic understanding of the kinds of conflicts they are likely to face, particularly those related to the evolving nature of the workplace. This knowledge can better support young professionals as they navigate their transition to managerial roles.

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APPENDIX (*Note: All first-person expressions are reproduced verbatim.")*

(A-1*) Dear Negotiation Coach: I was just offered a full-time job at a company where I did my paid internship; I know the company well. Their salary sounded like it was "take it or leave it ultimatum." I am new at this. Can I negotiate a starting salary? Can they pull an offer if I try to negotiate? ---Stumped in Somerville

(A-2*) I was a contractor at a company; COVID came, and the contract dried up. Then a year later the company offered me a full-time position with good benefits and a so-so salary that was actually less than I earned as a contractor; but I was desperate and took the position. Now a couple of years later, I am really upset that I am earning far less than my co-workers doing the same level of work. I don't like negotiating; I just want to be treated fairly. What do I do? --- bad negotiator in Nebraska

A-3*) After being laid off during COVID, I found a job at a startup with pretty much the same responsibilities (as one of the first employees) but with lower pay; the founder told me it was all they could afford. This was a significant drop in salary for me, and the benefits were very limited. I was assured that the salary would be adjusted when revenues increased. Fast forward. The company is doing well; we have ten employees and a positive cash flow. I am a major part of success. I learned that some of our recent hires are paid more than I am. When I ask about raises, my boss says the company can't afford them yet. My offer letter stated that my salary would be adjusted when the financials justified it. How do I negotiate this? Loyal in Loyola

(A-4*) Dear Negotiation Coach: I am new at this as I am about to graduate. I know a company is interested in hiring me. Should I make the first salary offer or should I wait for the company to make the offer? ...Negotiating in New York

Cases focusing on Co-workers

(B-1*) Dear Negotiation Coach: I was so excited when I got the job offer. This was my first job out of college. Everything was going well. The interviewer told me I was their top choice. Then I saw an email clearly not intended for me that said, "Although we didn't get our top choices, we should make the best of this situation." I am hurt and embarrassed. I don't know what to think; Now I have trouble looking my teammates in the eye. How should I handle this situation? Hurt in Hong Kong

(B-2*) Dear Negotiation Coach: We were at a presentation for a client when one of my co-workers presented some PowerPoint slides that were based on what I had shared with him earlier. He never mentioned that they were my ideas; he presented them as his own. What can I do? Buffaloed in Buffalo

(B-3*) Dear Negotiation Coach: I admit I am "old school" when it comes to writing. However, I was stunned when a young coworker called me out because I had used "OK" in an email; I meant it to convey that I agree and understand. I was told by this kid that it was insulting and passive-aggressive and means "go to Hell."; I was supposed to use "kk" whatever that means. If I had meant to tell off someone, they would know it. Some of these kids use "u" instead of "you." What am I missing here? Is this acceptable now? ---Geezer from Giza

(B-4*) Dear Negotiation Coach: I am at my first job after graduation. One of my coworkers seems to have disliked me, and I don't know why. He ignores me if I say something to him. The other day, he responded to me, but in Spanish, which I don't understand. I know he speaks English. How do I deal with this situation? --Lost in Translation

(B-5*) Dear Negotiation Coach, I work in a small office with several coworkers. One of my co-workers gives off a horrible odor; he seems oblivious. I leave work with a headache. I mentioned it to my supervisor, but nothing happened. This fellow is very nice otherwise; we like him, but he seems a little sensitive and fragile. I also have a problem with a strong perfume which a different co-worker uses. That gave me a headache, too. What do I do? Unscented in St. Louis

(B 6*) Dear Negotiation Coach: This happened a few years ago at a company party at a local hotel. I was standing around with a group of co-workers when I realized one of them was groping me. I removed his hand but didn't do anything else. Then just recently, I found out this man is about to become my boss. I don't want to be in a room with him. What do I do? --Groped in Granada

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(B 7*) Dear Negotiation Coach.I joined my company a few years ago, and I was in a meeting where a couple of men told an inappropriate and sexist "joke." This wasn't the first time I have been in this situation. Other times, my co-workers have referred to a female client in vulgar ways that they have never done with a male client. I have tolerated this since I need this job, but I feel I by saying nothing, I am contributing to the problem by saying nothing. What do I do?--Stuck in Steubenville

(B-8*) Dear Negotiation Coach: I am a freelance contractor working on a project and am paid by billable hours. There is a co-worker on the same project; we do similar work. But she bills out more hours, and I know she works less than I do. My boss suggests I am not hard enough compared to her. There is a limited budget, and this other freelancer and I are competing. Neither my boss nor the project manager likes conflict. This situation stinks. What should I do? Fudged in Freeport

(B-9*) Dear Negotiation Coach: I am a forty-something woman in an IT firm. I have a new and recent graduate who reports to me. Since coming to work, he crossed boundaries countless times with me and others; some senior people have complained to me about him. When I try to coach him. he gets defensive, looking for praise.

I've been in this profession for decades; I don't like a young kid telling me and others how to do our job better. I don't want to involve HRM; I should be able to handle this. How can I deal with this pushy and oblivious young man? --- Choking in Charlotte

(B-10*) Dear Negotiation Coach: I have a co-worker with the same title as I have, who treats me like a subordinate. She gives me work to do, sends out critical memos without copying me, and shares my work with our boss without saying it is my work. Help; what can I do?

(B-11*) Dear Negotiation Coach: I have been working remotely since COVID. Recently, my new manager said we would have monthly team meetings, and we, as remote workers could join via ZOOM. Right before the first meeting, we got an email that the meeting was cancelled; no other information was given. Two days later, I got notes about a meeting that took place after the cancelled meeting; the three remote workers on the team, including me were listed as being "absent." This was troubling enough, so I emailed our team leader and asked about the next meeting; I got no response back. I emailed one of the in-person team members and found out about the next meeting. I had never gotten a link to that meeting so at the time of the new meeting, I emailed another team member and asked to be linked in to that ongoing meeting. I thought I was doing well in this job; the project manager praises me a lot. The other two remote members of the team are also upset. What can we do Remote in Montana

(B-12*) Dear Negotiation Coach: My office is recovering from the COVID remote period. We have a good team vibe responsible for a very specific task. During COVID we worked mostly remotely, but those days are clearly over; we are in the office 9 to 5. The in-office "rules" were strictly observed, except by one person. This colleague often leaves early, comes in late, and takes long lunches. Our boss is either oblivious to the situation or doesn't care. None of us likes confrontation, and we don't want to tell on our colleague, but we are frustrated. How might we negotiate this situation? Tattler in Tampa

(B-13*) Dear Negotiation Coach: My group has regular meetings, and those travelling join by Zoom. There have been a couple of situations where some individuals seem to forget that their cameras are on. I have seen some pretty inappropriate behavior. It doesn't really bother me, but I worry that my colleagues may be doing this with customers or clients. Should I say anything? Freaked out in Fresno

(B-14*) Dear Negotiation Coach: I work in a small IT group in Toronto. Our group has been together for a while, and we socialize outside of work. Recently, there appears to have been a falling out between Pablo and Dylan; I think it was over some problem over a time sensitive report. Then, apparently, Pablo was talking with another colleague, Tomas, and trash-talked about Dylan in Spanish, right in front of Dylan. It turns out Dylan is fluent in Spanish; Pablo and Tomas didn't know this. The tension is affecting our team. Should I tell Pablo and Tomas that Dylan understood their conversation? What should I do? --Tongue Tied in Toronto

Cases relating to Dealing with Subordinates

(C-1*)Dear Negotiation Coach: I am convinced that the guy we interviewed last month is not the person who showed up. The hair, the verbal style, and the glasses are all different. This guy talks about his kids and wife, but the person we interviewed didn't have a family. The one we interviewed was quite self-assured; this one isn't like that at all. I am the manager; what do I do? Flummoxed in Florida

(C-2*) Dear Negotiation Coach have an employee who often calls in sick when she is scheduled for overtime, which is required in my job. She keeps claiming her children at home prevent her from working nights and weekends, which is required.

My company requires that some employees work the night shift and occasional weekends.. I have an employee who often calls in sick, particularly when she is scheduled for a night shift. Earlier this year, she refused to work nights and weekends because she had children at home. But this caused a revolt because others had to pick up her load and take on more than their share of undesirable assignments. I support the idea of "sick leave," as long as it is for legitimate reasons. This is a headache. Sick in St. Louis

(C-3*) Dear Negotiation Coach: I was recently promoted and am not managing a group of what used to be my peers; I have worked with these people for quite a while. Some of my old co-workers don't seem to be accepting my new role in the hierarchy. They don't seem to like change and sometimes ignore my directions. "Things were fine the way they were" seems to be the general attitude. How do I negotiate this situation? ---ignored in Indianapolis

C-4*) Dear Negotiation Coach: I am new in a small NGO with six people reporting to me. Most of my reports are fine. However, one, Terry, is very difficult; she is often late with her work, and is unpleasant to some people we have to interact with. My manager, Simon, admitted that Terry can be difficult but felt she is adequate at the job. I spoke with her last supervisor, who admitted that Terry was a challenge to manage. Simon said I should deal with the situation. What do (I do? Puzzled in Providence

C-5*) Dear Negotiation Coach: I am new at managing people; a part time employee is into all kinds of conspiracy theories; she seems to believe a lot of stuff that comes out of the rabid extreme internet. She brings up this garbage with co-workers and sometimes even customers in our store. We laugh at these loony stories she tells. But the other day I heard her railing with a customer about how all vaccines lead to autism. We are in a university town; this is not what our customers should have to listen to. What can I do? Annoyed in Ann Arbor

(C-6*) Dear Negotiation Coach: I am in my first management position and working in a small office in cubicles. We recently hired a man a few years older than I. I'll call him Sean. Sean immediately put up some very aggressive right-wing posters, including one from the National Rifle Association. Another was of a woman at a women's rights demonstration with an armed man with a foot on her head. These seem inappropriate for an open office. They are offensive. Sean is a poor performer as well. Should I deal directly with Sean, my boss, HR, or what? Armed in Armadillo

(C-7*) Dear Negotiation Coach: I am fairly new at management and only recently out of college. I have a direct report, Sally, who is a reasonably good worker, but she has a health issue that makes her frequently unavailable. HR says to work with her and accommodate her disability, but every time she is out, it throws the group into chaos. I have to shift assignments, adding Sally's work to others. I've asked about reducing Sally's responsibilities and pay, but I am told that it would be punishing someone for a disability. I can't get the manager, HR or Sally to realize the challenges they are causing. I need support here and am not getting it...---Flustered in Fairfax

(C-8*) Dear Negotiation Coach: We are still working mostly remotely, although COVID is long over. I find it hard as a recent graduate to get to know my manager and my co-workers. I don't get to know people when I am remote. I think more senior people are fine with this; they have a history with people, and I don't. It would appear hybrid work is the future, but it seems to be negatively affecting my career. How can I navigate this new work situation? How do I manage my career in this new world; how do I get the mentoring I need; how do I gain visibility? Isolated in Islington

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(C-9*) Dear Negotiation Coach: I am fairly new to management in a small startup; I don't have much training for this. One of the people under me likes to talk about her coworkers; really, it is gossip and often outright lies. This creates real dissension in the group. The stories she tells me get me upset; then I later find out there isn't much behind the story or an exaggeration. She likes to play one co-worker against another. We are now onto her game and are suspicious of anything she says. I really want to end this, but I should add that she is a very essential worker; she is very good at her work, and I don't want to lose her. I will also add that I really dislike confrontation. I don't want this to continue but I don't want to lose her, and I am reluctant to take this head on. How do I negotiate this situation? Trouble in Tahiti

Dealing with a boss

(D-1*) Dear Negotiation Coach: My boss behaves very inappropriately in group situations. He puts me down publicly; he addresses me like a child. The other day in front of my co-workers, he said "you ********* up." I was humiliated and embarrassed. I can't quit, but what can I do? Demeaned in Denver

(D-2*) Dear Negotiation Coach: We recently got a new boss who initiated this policy where every day we have to post three things we did that were important during the last workday. Our boss says this is a good way to stay current with what are coworkers are up to. It feels like "big brother." We used to have weekly update meetings; that worked fine. The new policy feels like overkill, but I don't know whether to push back or just do it and hope it goes away soon. This new manager is also a micromanager; she doesn't trust me. She constantly asks me for updates; I find I have to waste a lot of time just giving her the constant updates. What can I do? Micromanaged in Minneapolis

(D-3*) Dear Negotiation Coach: I am new to the workplace; I want to succeed and grow; I want challenging projects. I keep asking, but my boss never helps this happen. I am never going to grow if I just do the same thing again. I am being blocked here. I don't want to quit, and I should add that I hate negotiating, which seems worse than what I am going through. --Blocked in Biloxi

(D-4*) Dear Negotiation Coach: I have a new manager who sent me a "friend" request. Even if I liked this manager or what she is doing, which I don't, I would find this strange and weird. This is overstepping a boundary. But I don't want to be naive about how much power a boss can have. I hope ignoring it resolves the issue. What do you think? --defaced in Detroit

(D-5*) Dear Negotiation Coach: I am a recent graduate. My immediate supervisor is familiar with my work, but her boss, by his own admission, has limited knowledge of my responsibilities. During my midyear review, he made general comments about my "excellent" performance but focused on my need to improve my adjustment to "company culture." This criticism seemed to stem from a single email, which he claimed had an "aggressive" tone. The mail allegedly prioritized tasks by placing the requested task in a queue behind other projects.
I still believe the email was reasonable. With my annual review approaching, I'm unsure how to prepare. Should I try to demonstrate an improvement in my cultural fit, or should I focus on my work performance? I suspect that the head of the business unit wants to maintain control, and as long as I maintain a positive and respectful demeanor in his presence, this issue may resolve itself. However, I'd like to influence the discussion during my review. I think it is also possible that management is under pressure to keep these performance reviews near an "average," and that this manager just needed something to lower my average. Perplexed in Peoria

(D-6*) Dear Negotiation Coach: I work for a research contractor, and during the pandemic, I, along with my colleagues, have appreciated the flexibility of working from home. However, with the arrival of a new manager, we are being instructed to return to the office twice a week. This new policy does not apply to two older colleagues in their 70s, who are allowed to continue working from home due to "health reasons." They used to work in the office, and nothing has changed about their health. None of us is eager to return to the office, as we have maintained productivity without any issues while working remotely. I want to keep my flexible work schedule; how do I negotiate this? Remote in Revere

(D-7*) Dear Negotiation Coach: My company just sent a request (demand) for a list of my LinkedIn contacts. I was told this was to enhance the company's understanding of its networks and relationships, as well as to identify potential areas for growth. However, I am extremely uncomfortable with this request. How would you negotiate this situation? Unlinked in Lancaster

(D-8*) Dear Negotiation Coach: I recently requested and received approval for a deadline for an extension on a project for a new client. However, as the revised deadline approached, the client seemed to have forgotten our agreement. He became upset when he realized that certain parts of the project were not yet complete, placing the blame on me. I am confident that I was not at fault, as we had a clear understanding of the extension. How can I effectively negotiate this situation to resolve the misunderstanding and maintain a positive working relationship? On time in Ontario

(D-9*) Dear Negotiation Coach: I have a manager who consistently addresses me as "sweetie," a term he does not use with anyone else in the team. When I brought this to his attention, he explained that I reminded him of his daughter. I find this behavior uncomfortable and unprofessional. I don't know what to do. How can I negotiate this situation? Sweet and Sour in Sweden

(D-10*) Dear Negotiation Coach: My manager has a child's basketball and basket in his office. These aren't private offices. He has this habit of shooting baskets constantly when we are in his office or on the phone or computer, which is frequently. There is no escape. I don't want to cause problems. Tennis tension in Tennessee

D-10*) Dear Negotiation Coach: I recently wrote an email to a co-worker and my manager about concerns about our project which was not going well. I wrote this as a private email, but my manager showed it to another higher up, Audrey, who felt offended by the email and was upset with me. Audrey was part of the reason the project was behind schedule. Audrey was never supposed to see this. Audrey and I had a very uncomfortable discussion. Actually, it wasn't a discussion. She let me have it. Any advice---Trashed in Toronto

(D-11*) Dear Negotiation Coach: I recently started an internship with an NGO, a position I hope will get me close to my "dream job." However, with an advanced degree, being in an entry-level position again is proving challenging. Despite producing work of a high caliber, I feel undervalued in terms of respect and compensation. My main concern is my manager, who I perceive as having a poor work ethic and a haphazard approach. In my first six weeks, she took three weeks of unannounced leave, frequently arrives late, and complains about her workload. She delegates most of her tasks to the interns, who are required to be present in the office from 8 to 5 daily. I have set boundaries, such as refusing to perform personal errands for her.

I'm trying to put aside my ego and focus on the benefits of this experience, but I'm aware that my manager holds significant influence over future recommendations. Should I tolerate this situation and aim to move forward as soon as possible? I'm aware that intern exploitation is common, but this is my first experience with it. ------ Chafing in Chelsea

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Needed and Important Vocabulary in the Undergraduate, Introductory Organizational Behavior Course

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ABSTRACT

Literacy is important, and vocabulary is a critical aspect of literacy. Undergraduate students enrolled in a required, survey course in management and organizational behavior at a large, urban, public campus select a book on management, broadly defined, from a narrow range of relevant books in the campus library. Part of the resulting book report is the identification of two unknown or challenging terms. From 2011-2015, approximately 750 students have completed this assignment. The most difficult words (with the reporting frequency in parentheses) were "paradigm" (10), "synergy" (7), "acrimonious" (5), "axiom" (5), "congruent" (5), "hubris" (5), "remuneration" (5), "benchmark" (4), "convergent" (4), "idiosyncratic" (4), "pertinent" (4), "reprimand" (4), and "ubiquitous" (4). At least two students found the word "innovation" unknown or challenging. An analysis of these and other words from this recurring activity offers 1), a unique insight into the cognitive processes and learning patterns of a contemporary business student, 2), a qualitative mirror of the formative elements of the course syllabus, and 3), perhaps a signpost and normative position to guide the design and development of outcomes, knowledge, activities, and measures associated with future organizational behavior courses.

KEYWORDS: Business Communication, Reading, Vocabulary, College Writing, Pedagogy, Language Use, Semantics, Workplace skills, Career Success

INTRODUCTION

Educators have a deep sense of continuous improvement with respect to teaching activities, including all aspects of literacy, and management instructors have a long and cherished history of substantive progress in this area. Through formal mechanisms such as peer-review and student evaluations, and informal routines such as course-level affinity groups and "water-cooler" exchanges among colleagues both near and distant, motivated instructors challenge their own conventional wisdom with the inherent tools of contemplation and introspection. Everyone has a "suggestion" or "best practice" or "valid, repeatable exercise"—few individuals, however, offer alternatives and a rich, justifiable calculus for removing content, or at least resisting its unrelenting expansion.

The direction and magnitude of the rapid pace of the development of science of engineering in the past 100 years has been sure and steady, and in particular, the recent growth in the last fifteen years of global, mobile, near-real-time connectivity has been extraordinary. And management is just another technology. As such, it has revolutions in theory, patterns of diffusion, variation in use in practice, and every other artifact of human and capital development, including a not unexpected rise in the number concomitant terms, phrases, idioms, and both prosaic and poetic constructs that help explain the phenomenon of management, including the theory and practice of organizational behavior. Accordingly, the pressure "to add more technical content, especially because we can with technology" to each section of every management course changes from being invisible and strident to being palpable and impulsive. Staring down the face of technological determinism and exploding frameworks and models, not to mention the growing base of apocryphal stories and first-person experiences, is non-trivial. Further, choosing to "just say no" to the ever-expanding available content and instead, focusing on the truly important elements of a course is increasingly non-trivial, and likely to remain a recurring challenge for everyone involved in the learning enterprise.

One challenge, among many, is to balance depth of knowledge with breadth of knowledge. While this issue is certainly not a new one, finding measures that discriminate between these two orthogonal approaches well, much less offer reliable evaluation and valid assessments to help with instructional improvement can be elusive. Architecturally, perhaps a *survey* course should emphasize breadth (that is, outcomes and abilities that are liberal and wide); perhaps an *elective* course should emphasize depth (outcomes and abilities that are conservative and narrow). Some number of instructors and institutions are likely to think they have quantitative measures that are rigorous and relevant in this area, while others would reasonably challenge those assumptions. Even more chaotically, qualitative measures are either not discussed, harder to observe, not experimented with, unable to generalize well, or are unlikely to foment a consensus among peers. Of course, additional polarizing and reductionist views are not what instructors want. These instructors want measures that are tangible, useable, and ideally, parsimonious.

Stotsky (2010) surveyed 400 high-school teachers across the nation regarding the types of book-length materials assigned in class and the concomitant pedagogy used by the teachers. Stotsky focused on 9th, 10th, and 11th grade teachers and excluded remedial or Advanced Placement classes. Among her findings were, 1), more faculty are reading to the students in class, 2), there is less "close reading" (analysis) and more "reader reflection" approaches used, 3), the overall quantity of the reading is dropping, 4), there is a less identifiable "common canon," 5), current, youth adult fiction tops the reading lists, 6), according to a commonly-accepted "readability" score, most books read by 9th/10th/11th grade students are at the 5th/6th grade reading level, and 7), the degree of difficulty of the literature read does not generally progress from the 9th to the 10th to the 11th grades. Beyond mastery of general content from a broad variety of University-level subject areas, the management discipline embraces substantive content areas critical to the management of organizations including intrapersonal skills such as reflection, introspection, supportive communication, and empathy, and technical skills such as innovation, creativity, decision-making, and ethical accountability. Students of management require a meaningful vocabulary foundation rooted in both lexical definitions and figurative interpretation.

At the turbulent intersection of emerging, digital culture and traditional learned societies is a new field affectionately labeled "digital humanities." This organic field is variously characterized by many innovative and seemingly discordant research areas. One particularly popular stream in this discipline joins the conventional research associated with "close reading" of literature and the computational research associated with "distant reading" of literature. The former relies chiefly upon narrow expertise steeped in monastic tradition; the latter relies chiefly on learning by statistical inference and sundry algorithmic approaches. While this nascent discipline encompasses many themes, patterns, and meanings, there can be little doubt that words—symbols, syllabaries, and vocabularies—lie at the heart of the methodologies and the kernel of the interpretation of results.

In linguistic parlance, a "corpus" is a collection of words specifically identified for a purpose. A self-selected, anecdotal set of "difficult vocabulary" is hardly a narrative corpus, and rudimentary frequency distributions, even gathered temporally, is hardly an inferential linchpin. However, to the extent that management is a liberal art (Drucker, 1954), and the application of digital tools can be applied, even in a small way, to the liberal (humanistic) arts over time, inquisitive instructors and other institutional decision-makers can generate new operational constructs that inform classroom management on everything from recommended activities to attuned course outcomes.

The *sin non qua* of learning culture is language, and the most atomic component of language is the word. It is likely that the study of words, in both qualitative and quantitative domains, will offer a new perspective that addresses the core question faced in formal and informal assessment circles—"what are the students learning [not learning]?" and "how do we know [not know]?". Management researchers, much less management instructors, do not strive to become literary theorists, comparative philogists, or computational linguists, even in an epoch of ubiquitous and applicable technology. Rather, our purpose is to complement existing sense-making pathways in the instructional environment with a new perspective sprung from a new, and hopefully transparent, toolkit.

The rest of this paper is structured as follows: First, a general overview of the field; Second, a description of data collection methodology; Third, some informal and formal analyses; and Last, some limitations, concluding thoughts, and an articulation of future research.

METHODOLOGY/DATA

Like many management instructors, this author emphasizes business and technical communication in the organizational behavior course. This effort includes verbal presentation skills and deliverables employing written media, along with all of requisite skills associated with composition, prose, and rhetoric. The subject of business communication has a long and established tradition in business schools, either as a distinctive department per se or an explicit programmatic goal for a College or Department. Specifically, helping students improve their writing involves a wide range of pedagogical tasks, such as setting appropriate expectations both clearly and early, using exemplars drawn from various organizational settings and contexts, and providing understandable rubrics and rapid turnaround for assignments to optimize student learning. Naturally, the amount of *in situ* time an instructor chooses to invest in language use in any give course is a function of many variables and subject in general to instructor autonomy, skill, knowledge, ability, and to great extent, a synoptic interpretation of one's intellectual mission in partnership with one's students.

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From 2011-2015, this author has assigned a traditional, end-of-semester book report. Approximately 750 students—mostly undergraduate, business juniors—have completed this assignment over the past four years. The students choose a book drawn from the on-campus library from the most appropriate, contiguous range of books aligned with the course learning objectives in a typical, undergraduate, organizational behavior course at an AACSB School of Business. At my university, a university with an enrollment of almost 35,000, there are approximately 3,600 books in the call number range of interest (HD20 to HD70 inclusive), with another 100 books or so in an applicable section on organizational psychology. Due to limited shelf space, approximately half of these 3,700 (3,600 + 100) books—the books with extremely limited circulation—are not available on the open, public stacks. This leaves approximately 1,850 (3,700 / 2) books directly available to the students. In a traditional academic approach for a book assignment, each student chooses an individual, compelling theme (such as leadership, leading, organizing, control, etc.), selects a few candidate books on that theme, selects a single book from the candidate books after a cursory review, reads the book, and writes a typical book report. One element of this book report is to answer the following question: "What two words from the book didn't you know?" The student is to identify the two words, look up the meaning of both words, and use both the words in two new sentences in the correct way. This one question regarding vocabulary on this one assignment is remarkably telling.

COMPLETE LIST OF WORDS (CORPUS)

Many terms, phrases, and acronyms have only been identified once. While such artifacts are interesting as background context, it is the words that have been identified more than once that spark reflection, challenge intuition, and ultimately, invite analysis. The words that have been identified more than once are shown in Table 1 (there were no words with a frequency of 9, 8, or 6).

Table 1. Difficult words that students have identified more than once.

Number of citations	Word
10	Paradigm
9	
8	
7	Synergy
6	
5	acrimonious, axiom, congruent, hubris, remuneration
4	benchmark, convergent, idiosyncratic, pertinent, reprimand, ubiquitous
3	adhocracy, aggrandizement, altruism, analogous, attunement, autocratic, burgeoning, cadre, constituent, continuum, debacle, elicit, ethos, exacerbated, fiefdom, inextricable, myriad, obsolescence, ostensibly, panacea, pragmatic, proliferation, reciprocity, routinization, stultifying, usurp, veritable
2	abdicate, aggregate, ameliorate, amiable, amygdala, anathema, antagonism, arduous, assertive, asynchronous, attrition, bandwidth, cantankerous, catharsis, chagrin, cogent, complacency, conglomerate, contingency, corollary, cumbersome, cynic, delve, demystify, dichotomy, disintermediation, disseminate, dissonance, echelon, effervescence, empirical, emulate, encompass, encroacher, epitome, espouse, exhortation, feign, folly, formidable, *gestalt (German),* gumption, gunnysack, holistic, impetus, incongruous, indexicality, inexorable, infallibility, ingenuity, innovation, innuendo, intrapreneur, intrinsic, *keiretsu (Japanese),* knowledge worker, labyrinthine, lattice, lethargic, litany, meticulous, mnemonic, nepotism, niche, obstreperous, oscillate, plethora, procurement, rapport, reflexivity, resilience, reticent, rigmarole, ruminate, sabbatical, sanguine, self-effacing, slough, staggering, stalemate, stewardship, synthesis, taciturn, tantamount, tenacious, tenure, thwart, transference, transient, triad, tyranny, untenable, vicarious, vicissitudes, zeal

In cases of multiple inflection (morphology) versions, all of the inflections are counted; however, only a single inflection (the root word or headword) is shown. In a few cases, British spellings were identified by the students, and such words were transformed into their respective, customary American spellings just for simplicity.

Several biases in this data collection are worth noting. Biases related to the Library include an opaque and intermittent pattern of acquisition, based perhaps on Full-Time Equivalent Student (FTES) allocations and/or Full-Time Equivalent Faculty (FTEF) proportions across the University, and miscellaneous, wavering budgetary concerns. Another bias concerns the recent trend towards electronic-based collections in addition to, or at the expense of, the traditional print-based collection. Biases related to the instructor include providing, *ex ante*, the students with a list of "worthwhile" authors. This list presently includes C. Argyris, C. Barnard, W. Bennis, K. Blanchard, C. Christensen, J. Collins, J. Conger, S. Covey, W.E Deming, P. Drucker, J. Galbraith, D. Goleman, G. Hamel, C. Handy, P. Hersey, R. Kanter, H. Koontz, J. Kotter, J. Kouzes, R. Likert, J. Lipman-Blumen, J. March, H. Mintzberg, I. Mitroff, G. Morgan, J. Pfeffer, C. Prahalad, J. Quinn, E. Schein, D. Schön, P. Senge, H. Simon, N. Tichy, and K. Weick. In the process of "seeding" the students' minds with books of lasting, substantive quality (at least subjectively according to the instructor), it possible that words originating from these books are overrepresented in Table 1. Biases related to the student include a natural inclination to 1), select shorter books rather than longer books (because of limited time in the course, limited experience with longer books, or the perception that longer books are inherently more difficult), and 2), privilege books that are newer rather than older (perhaps due to a notion that newer is "better" than older). No doubt other types of biases are present in this approach, but the relatively large size of the University library, and the relatively large and stable number of students over time with the same course, same instructor, and same syllabus should mitigate those biases to a degree.

INTERPRETATION

Casual, exploratory inspection of the one-way frequency distribution can be helpful. The fact that word "paradigm" is the word chosen as the one the students know the least is an insight that is likely to support or challenge an instructor's perspective on what students know. Recall that the convenience sample of students are business juniors enrolled in a survey course. They will have not had in the past, and are unlikely to have in the future, a course on research methods. In such a context, it makes sense that students would identify difficult words such as "paradigm," "axiom," "empirical," "indexicality," "reflexivity," and "transference;" and additionally, perhaps "convergent," "reciprocity," and "synthesis." The fact that this is a survey course serving as an introduction to the topic of organizational behavior appears to support the student identification of the following difficult words—"acrimonious,", "hubris,", "attunement," "fiefdom," "routinization," "catharsis", "dissonance," "holistic," "intrapreneur," "nepotism," and "self-effacing." The fact that this is a survey course with business students (with less affinity to the physical and natural sciences, and technology and engineering) appears to support the student identification of the following difficult words—"amygdala, "asynchronous," "effervescence," "oscillate," and "panacea." Finally, undergraduate juniors may straightforwardly have difficulty with semantically-rich words such as "paradigm," "synergy, "remuneration,", "idiosyncratic," "ubiquitous," and most certainly, "ethos," "*gestalt*," and "*keiretsu.*" The fact that the word "innovation" is even on the list is important—it challenges faculty to not make sweeping assumptions in a classroom environment.

One recurring pattern is the significant number of words that conceal one or more deep processes. Entire sequences of books and have been written that discuss the theory-building essence of "Paradigm" and "Synergy." The determination of "Acrimonious" and "Hubris," not to mention their toxic effects, in an organizational development, executive coaching, or professional context may take many months, or in extreme cases, years. A word such as "remuneration" would appear to be essential to business students' foci on transactions to support production, consumption, and distribution; however, the term may simply be archaic or uncommon in texbooks or day-to-day work practice. "Axiom" and "congruent" may well represent terms that might be used weekly in an academic course in mathematics or even psychology, but the accretion of those two words and their meanings in a matriculation context has atrophied. These difficult words hint at the underlying processes in organizational behavior theory, and the breadth and depth needed by students to comprehend the discipline, at least well enough to succeed in an option/major and flourish in a firm's chaotic, dynamic milieu.

Assessing the veracity of the difficult words in a course is important. One method might be to compare the frequency of selection from the students with the frequency of use in a larger population. One population of words that might be useful is the frequency of results returned from a typical search in a major Internet search engine. The complete list of Google results for each of the difficult words is shown in the Appendix. Interestingly, there is essentially no correlation between the student-frequency and the Google-frequency (r=.038, p<.658, n=135). Qualitatively, the words might be classified or "mapped" by each of two frequency scales. An example of such a map is shown in Table 2, with arbitrary cut-points for "high" and "low" and the use of four words at the extreme as exemplars in each of the four (2 x 2) quadrants.

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Table 2. Map of Sample Difficult Words—Student-frequency by Google-frequency

		Google-frequency	
		Low	***High***
Student-frequency	*Low (2-3)*	Gunnysack (145,000) Encroacher (75,500) Indexicality (64,300) Intrapreneur (48,500)	Innovation (123,000,000) Rapport (85,500,000) Synthesis (67,900,000) Procurement (66,600,000)
	High (4-10)	Hubris (2,300,000) Aggrandizement (1,220,000) Acrimonious (1,240,000) Adhocracy (47,600)	Benchmark (33,900,000) Remuneration (32,400,000) Paradigm (24,400,000) Synergy (18,800,000)

Words that are only moderately difficult for students, and not common in practice (e.g., gunnysack) are perhaps relatively unimportant or irrelevant. Words that are very difficult for students, and not common in practice (e.g., hubris) are likely to be relatively important, especially in an academic context in organizational behavior. Words that are only moderately difficult for students, but common in practice (e.g., innovation) are likely to be relatively important in business practice. Words that are very difficult for students, and common in practice (e.g., benchmark) are perhaps relatively important in both academic and professional contexts. Naturally, a range of biases and systematic errors confound a clear, narrative analysis of this data.

SEMANTIC DIFFERENTIALS

Each of the difficult terms has a complement of both synonyms and antonyms. While the synonyms of each word are interesting, it's the antonyms of each word, especially antonyms in the context of the original word that is markedly compelling. The number of steps to transform two words syntactically is often referred to as the Levenshtein distance. The distance between the meaning of two words is often referred to as the semantic differential. In Table 3, each of the words identified four or more times is listed in the left-hand column, a suitable antonym is placed in the middle column, and a potential organizational behavior subject area or pedagogy is placed in the right-hand column. Some researchers and instructors might use alternate antonyms, but semantic differential analysis can assist with linking a student-identified difficult word with an instructor-identified critical organizational behavior topic or learning outcome. The table is ordered by degree of difficulty and then alphabetically within degree. Note that the resulting organizational behavior topics, read in descending order in the table, could form the basis for topics or subject matter in a defensible course syllabus or class outline.

Table 3. Linkage of difficult words to antonyms to organization behavior topics

Difficult Word	Suitable Antonym	Org. Bev. Topic
Paradigm	Turbulence	Change
Synergy	Disjunction	Leadership
Acrimonious	Harmony	Culture
Axiom	Hypothesis	Research
Congruent	Disjointed	Organizing
Hubris	Self-Effacing	Emotional Intelligence
Remuneration	*Pro-bono*	Social Responsibility
Benchmark	Subjectivity	Control system
Convergent	Divergent	Teams
Idiosyncratic	Generalizable	Parsimony
Pertinent	Immaterial	Planning
Reprimand	Engender	Innovation
Ubiquitous	Particularistic	Diffusion

LIMITATIONS

Assessing the face validity of this philological or linguistic approach is important. One such issue is that the difficult words are derived from books in the library. So any resulting measures are really measures of the veracity of the words found in the *books in the library*, not necessarily the words found in the *textbooks for the course*. Philosophically, the acquisition strategy for a library managed by the institution would be supportive and congruent with the learning strategy for a course managed by a Department. Whether this alignment could be measured quantitatively is an open question. If it can indeed be measured, word frequency may be part and parcel of the evaluative methodology.

Another limitation of the word frequency approach is the linguistically truncated method of self-identifying difficult words. A deeper assessment might have the students use the difficult words, perhaps even several, in multiple concrete sentence (perhaps across key learning outcomes), a rigorous and relevant essay, or best, a series of rhetorical, performative artifacts involving a subsequent course. The author has not attempted the second option, and the third option is difficult to implement. The author has observed that just having the students use a self-identified difficult word—that has been correctly looked up—in a new sentence can be a difficult exercise. But if students cannot turn their newfound knowledge into action, the learning can likely be lost, attenuated, or impaired.

A final limitation is that the data is now more than a decade old. This is an error on the part of the instructor/researcher. There are many weak excuses but only one real, truthful reason for the delay of publication. A typical research paper has to answer a "So What" question at the end. Beyond that "So What" question, a typical research paper on *pedagogy or instruction* has to answer at least two more difficult questions: "What, specifically, should be done to meet the students where they are, and most important, how should the instructor change to incorporate the results of the study? The author, simply put, was in denial that college-level student vocabulary (and perhaps literacy in general) had fallen off directly in the classroom over the more than four decades of the author's college-level instruction career. One factor might be "it's just an anecdotal observation, and a complaint from faculty that everyone has heard before." Other factors might be the slow decline was imperceptible (especially if not researched regularly at the college-level), the introduction of smartphone technology quickly impacted long-form reading, the campus library slowly began removing physical books, a shift in student's expectations and learning from knowledge to skills, society's turn of less support for higher education in general, the institution's manifest emphasis on timely graduation rates over quality, a shift in demographics or preparation, or incremental grade inflation. The author was either unable or unwilling both 1), to admit that the fundamentals of the classroom had changed so radically, and 2), to address those topics directly. This study should be conducted not just again but more systematically and on a recurring basis. Numerous reports in the mass media, especially since the pandemic, suggest that literacy (and numeracy) are in noticeable decline among college students (see, as just one example: https://www.uschamber.com/workforce/new-report-reveals-students-arent-ready-for-work-business-and-education-join-forces-to-close-the-gap).

CONCLUSIONS/IMPLICATIONS

A time may come soon where the majority of *physical books in the library* will be not just be supplemented, but rather supplanted, by electronic books ("e-books"). Students, faculty, and numerous motivated others will want to know how the themes, patterns, and meanings resulting from this transition have changed diachronically. Other things equal, can these same stakeholders rely on a diverse repository of instructionally-related materials to scaffold teaching, research, and service streams?

One can envision a time when the majority of *textbooks for a course of study* will be available in electronic format rather than print format. Further, it might even be possible for an instructor to know, *ex ante*, the word use frequency in an electronic textbook for a course. The eventual natural development of a process of linking the word use in a textbook or other instructional material to an understanding of which words are important for business practice and which words are the most difficult on a recurring basis for students informs an instructor as to likely obstacles and suggests to an instructor a developmental activity. This new kind of information on vocabulary "fits" and "gaps" is precisely the kind of information missing from the design of contemporary, cognitively-engaged assignments that emphasize skills, knowledge, and abilities aligned with stated course outcomes. One intriguing question is "If we don't know which words students have the most difficulty with, then how can we evaluate student deliverables in general, and student improvement specifically?"

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Perhaps most important, augmenting traditional "best practices" and "continuous improvement" with an elementary linguistic approach holds some potential to improve formative assessment processes. For example, the result of a semantic differential should align, broadly, with the learning outcomes of a course without knowing anything about a (potentially eccentric) teacher-instructor, a (potentially particularistic) syllabus, or a (potentially individualistic) set of assignments, exams, and grading methodology. In effect, a "difficult word" frequency approach has the structural potential to be an ideal embedded measure. Such an approach does not replace existing summative evaluations and formative assessments; it simply provides one more technique in an instructor's, course affinity group's, or assessment director's toolkit from which to triangulate one or more educational results. Of course, significantly more work needs to be done in this assessment area to design and develop a prescriptive model that can be formulated, implemented, and validated.

As the requirements for improvement in educational outcomes are enacted and enforced in the educational enterprise, new, demonstrable methods for identifying bottlenecks and superintending improvements in the educational enterprise are needed. It is possible that as the nascent discipline of "digital humanities" grows in research and practice, and the range and reach of computational technology increases, organizational behavioral researchers and instructors can architect, engineer, and construct new models of organic student learning aligned not only with academic goals but with skills, knowledge, and abilities that employers and society value.

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APPENDIX

The following table lists the complete set of words, Google results for each word on Sun. June 6, 2015, and the results of a search in an Organizational Behavior textbook available in full-text form.

Table 4. Difficult words ordered by frequency

	Frequency		
Word	***Student Identified***	***Google Results***	***Textbook Search***
paradigm	10	24,400,000	0
synergy	7	18,800,000	0
acrimonious	5	1,240,000	0
axiom	5	9,360,000	0
congruent	5	3,320,000	2
hubris	5	2,300,000	0
remuneration	5	32,400,000	1
benchmark	4	33,900,000	0
convergent	4	6,890,000	0
idiosyncratic	4	3,640,000	0
pertinent	4	31,400,000	0
reprimand	4	2,510,000	0
ubiquitous	4	15,000,000	0
adhocracy	4	47,600	0
aggrandizement	4	1,220,000	0
altruism	4	2,940,000	0
analogous	4	25,000,000	2
attunement	3	567,000	0
autocratic	3	2,440,000	8
burgeoning	3	5,090,000	0
cadre	3	41,000,000	0

constituent	3	33,200,000	0
continuum	3	22,600,000	6
debacle	3	5,650,000	0
elicit	3	8,800,000	2
ethos	3	9,490,000	0
exacerbated	3	5,280,000	0
fiefdom	3	322,000	0
inextricable	3	1,120,000	0
myriad	3	15,700,000	1
obsolescence	3	2,850,000	1
ostensibly	3	6,590,000	0
panacea	3	4,750,000	0
pragmatic	3	12,600,000	5
proliferation	3	22,200,000	2
reciprocity	3	9,710,000	0
routinizaiton	3	156,000	0
stultifying	3	416,000	0
usurp	3	1,900,000	0
veritable	3	8,200,000	0
abdicate	2	3,180,000	0
aggregate	2	50,800,000	1
ameliorate	2	2,670,000	0
amiable	2	10,200,000	0
amygdala	2	1,490,000	0
anathema	2	4,570,000	0
antagonism	2	6,310,000	0
arduous	2	6,610,000	0
assertive	2	5,100,000	0
asynchronous	2	8,070,000	0
attrition	2	4,840,000	0
bandwidth	2	49,500,000	0
cantankerous	2	1,030,000	0
catharsis	2	1,990,000	0
chagrin	2	7,890,000	0
cogent	2	3,950,000	0
complacency	2	4,320,000	0
conglomerate	2	7,160,000	0
contingency	2	14,700,000	48
corollary	2	8,540,000	0
cumbersome	2	8,150,000	2
cynic	2	3,240,000	0
delve	2	6,040,000	0
demystify	2	784,000	0
dichotomy	2	5,160,000	0
disintermediation	2	183,000	0
disseminate	2	7,880,000	0
dissonance	2	3,010,000	0
echelon	2	5,980,000	0
effervescence	2	2,150,000	0
empirical	2	39,100,000	0
emulate	2	8,880,000	0
encompass	2	11,400,000	3

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encroacher	2	75,500	0
epitome	2	8,270,000	0
espouse	2	1,990,000	0
exhortation	2	3,650,000	0
feign	2	1,560,000	0
folly	2	18,000,000	0
formidable	2	24,400,000	0
gestalt	2	17,800,000	0
gumption	2	627,000	0
gunnysack	2	146,000	0
holistic	2	24,300,000	0
impetus	2	11,900,000	0
incongruous	2	2,590,000	0
indexicality	2	64,300	0
inexorable	2	3,810,000	0
infallibility	2	1,650,000	0
ingenuity	2	11,300,000	0
innovation	2	123,000,000	32
innuendo	2	2,960,000	0
intrapreneur	2	48,500	0
intrinsic	2	23,000,000	2
keiretsu	2	344,000	0
knowledge worker	2	246,000	0
labyrinthine	2	1,200,000	0
lattice	2	22,700,000	0
lethargic	2	2,290,000	0
litany	2	2,860,000	0
meticulous	2	6,860,000	0
mnemonic	2	2,290,000	0
nepotism	2	1,450,000	0
niche	2	35,700,000	0
obstreperous	2	372,000	0
oscillate	2	2,110,000	0
plethora	2	7,810,000	1
procurement	2	66,600,000	0
rapport	2	85,500,000	0
reflexivity	2	972,000	0
resilience	2	9,590,000	0
reticent	2	5,650,000	0
rigmarole	2	312,000	0
ruminate	2	526,000	0
sabbatical	2	3,070,000	0
sanguine	2	8,190,000	0
self-effacing	2	856,000	0
slough	2	9,370,000	0
staggering	2	10,700,000	1
stalemate	2	3,220,000	0
stewardship	2	10,700,000	0
synthesis	2	67,900,000	1
taciturn	2	1,110,000	0
tantamount	2	3,330,000	1

tenacious	2	7,450,000	0
tenure	2	30,300,000	0
thwart	2	5,170,000	0
transference	2	4,150,000	0
transient	2	30,500,000	3
triad	2	10,200,000	0
tyranny	2	14,600,000	0
untenable	2	3,800,000	0
vicarious	2	3,100,000	0
vicissitudes	2	4,880,000	0
zeal	2	20,500,000	0

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The Unintended Consequences of Exogenous Events Impacting the Globalization of Business Schools

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ABSTRACT

The fall of the Berlin Wall and the opening of the Communist Bloc spurred unprecedented growth in global trade, as China, Vietnam, and Eastern European countries became new markets and production hubs. With declining barriers to trade and foreign direct investment, improved logistics, and better communication, firms began to source, sell, and produce globally. US business schools and their accrediting bodies responded in kind. AACSB encouraged global thinking in the curriculum and cultural diversity as early as 1990, accredited its first non–North American school in 1997, and today accredits more than 1,000 schools in over 60 countries. EFMD's standards emphasize the international composition of faculty and students. Schools built international partnerships, exchange and study abroad programs, joint degrees, global immersion experiences, and active recruitment of international students and faculty, and continued to globalize even after 9/11 and the COVID-19 pandemic. As recently as 2026, AACSB and others continued to stress the value of globalization for US business schools.

That progress now faces a cluster of largely exogenous policy shocks: successive rounds of tariffs, a proposed shift from "duration of status" to fixed admission periods for student visas, a proposed $100,000 H-1B application fee, the possible elimination of Optional Practical Training, and rising geopolitical tensions. This article maps how these shocks affect five core business school functions — tuition revenue, classroom diversity, the faculty pipeline, doctoral programs, and study abroad — and argues that, while each shock alone is modest or contested, together they threaten to reverse three decades of globalization. The contribution is twofold: a framework linking specific policy shocks to the business school functions they endanger, and a set of concrete strategic responses, from diversifying recruitment markets and restructuring partnerships to embedding globalization in the curriculum and protecting the faculty pipeline, that schools can pursue while the policy environment remains outside their control.

Keywords: globalization, business school internationalization, H-1B visas, tariffs, Optional Practical Training, international students

INTRODUCTION

For more than three decades, US business schools have been among the chief beneficiaries — and engines — of an increasingly globalized economy. By the *globalization of business schools*, we mean the integration of international students and faculty, internationally oriented curricula, cross-border partnerships and joint degrees, study abroad and global immersion experiences, and international accreditation into a school's mission and day-to-day operations. As barriers to trade and investment fell after the 1990s, business schools recruited globally, partnered internationally, and built curricula premised on the free movement of people and ideas (Manuel, Shooshtari, & Fleming, 2002). AACSB and EFMD accreditation reinforced internationalization as a standard of quality and global relevance (McIntyre & Gilbert, 2021). International enrollment reached an all-time high of nearly 1.18 million students in 2024/25 (Institute of International Education, 2025; **Figure 1**).

That model also carries real economic weight. International education is among the country's largest service-export sectors (International Trade Administration, 2025). In the 2023–2024 academic year, international students contributed an estimated $43.8 billion to the US economy and supported more than 378,000 jobs (NAFSA, 2025), part of a broader US surplus in services that offsets a large deficit in goods (U.S. Bureau of Economic Analysis, 2025). The aggregate services-trade dimension of this story is examined in a companion analysis (Carrillo, Kraft, & Kraft, 2025); the present article narrows the lens to business schools.

A cluster of recent policy actions, however, may quietly undermine both the educational and economic value of globalization, often as an unintended side effect, since several of these measures were aimed at goals unrelated to higher education. Tariff policy directed at manufactured goods, for instance, does not appear to account for how closely trade in goods and trade in services are intertwined (Evenett, 2024), even as it sours the international climate in which schools recruit. Observers have begun to warn that such measures could erode one of the country's strongest export sectors (The Washington Post, 2025).

This perspective article examines how five largely exogenous policy shocks — multiple rounds of tariffs, a proposed shift from "duration of status" to fixed admission periods for F-1 and J-1 visas, a proposed $100,000 H-1B application fee, the possible elimination of Optional Practical Training (OPT), and rising geopolitical tensions — may together reverse much of the globalization that US business schools built over the past thirty years. To organize the analysis, we map each shock to the core business school function it most threatens: tuition and fee revenue, classroom cultural diversity, the faculty talent pipeline, doctoral program viability, and study abroad and global immersion. The sections that follow trace each shock through this framework, and the closing section turns to the concrete steps schools might take in response.

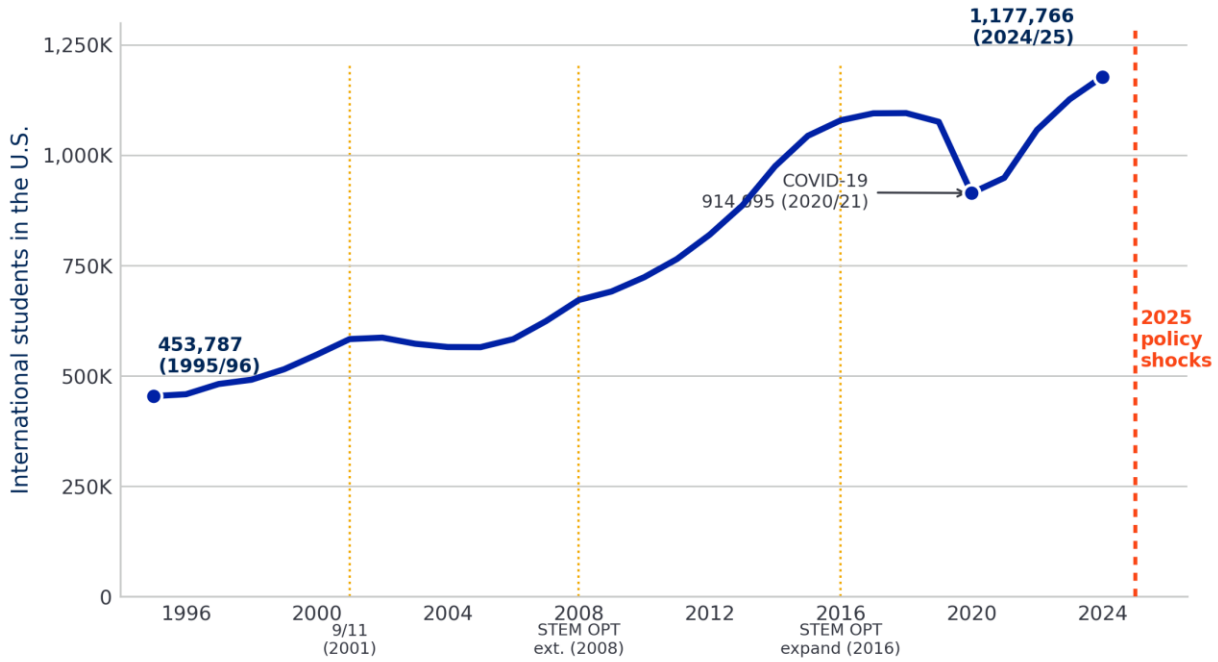

Figure 1. International Student Enrollment in the United States, 1995/96–2024/25
Note. Total international student enrollment at US higher education institutions reached an all-time high of 1,177,766 in 2024/25. Selected policy events are marked for reference. The 2025 policy shocks — tariff escalation, the proposed shift to fixed admission periods for F-1 and J-1 visas, the proposed $100,000 H-1B fee, and the proposed elimination of Optional Practical Training — occurred after the most recent data point. Source: Authors' analysis of the Institute of International Education (2025), *Open Doors Report on International Educational Exchange*, "International Students by Academic Level, 1954/55–2024/25."

TARIFF DISRUPTIONS

The first and most diffuse of these shocks is tariff policy. Successive rounds of tariffs and the retaliatory measures they have provoked have heightened global uncertainty and revived concerns about US economic isolationism. For business schools, the effect of tariffs is largely indirect: the measures themselves target manufactured goods, but they shape the broader climate in which schools recruit students and faculty from abroad. Prospective applicants and their families may interpret trade conflict and the nationalist rhetoric that often accompanies it as a signal of how welcome they would be, a signal that can weigh on enrollment decisions even when no policy directly restricts study visas.

Tariff policy may also affect educational services through a channel its designers appear to have overlooked. Tariffs aimed at the goods deficit do not account for the interdependence between trade in goods and trade in services (Evenett, 2024), and education is among the largest US services exports (International Trade Administration, 2025). When trading partners retaliate, services such as education can become collateral targets, whether through reciprocal visa friction, official discouragement of study in the US, or simply the cooling of bilateral goodwill on which student mobility depends. Because international tuition is a meaningful revenue source and a primary driver of classroom diversity, even modest declines in applications and yield could strain both the finances and the educational mission of US business schools.

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Early indicators suggest the climate may already be cooling. After three decades of near-continuous growth to the 2024/25 peak (**Figure 1**), international student arrivals in August 2025 were about 19 percent lower than in August 2024 (ABC News, 2025). Trade tensions are unlikely to be the sole cause; the visa and immigration changes discussed below almost certainly contribute, but the timing coincides with a broad softening in international demand for US higher education, a moment when business schools can least afford it.

FOREIGN STUDENTS

The most direct threat to business school globalization stems from changes to the student visa regime. On August 28, 2025, the Department of Homeland Security proposed replacing the long-standing "duration of status" framework for F-1 students and J-1 exchange visitors with fixed admission periods capped at four years (Federal Register, 2025). The proposal would also shorten the post-completion grace period from 60 to 30 days and eliminate it entirely for students whose extension requests are denied, so unlawful presence could begin to accumulate immediately (Yale OISS, 2025). For doctoral candidates whose programs routinely run beyond four years, a fixed term raises the prospect of reapplying for status mid-degree, with attendant costs, delays, and the risk of denial. Even when extensions are ultimately granted, the added uncertainty may deter applicants at the point of decision, before any rule is ever applied to them.

That uncertainty falls on a population that US business schools have come to depend on. International enrollment reached an all-time high of 1,177,766 in 2024/25 (Institute of International Education, 2025; **Figure 1**), but the headline total masks signs of strain: new international student enrollment fell 7 percent that year, and new graduate enrollment declined 15 percent (Institute of International Education, 2025). Business schools are already feeling the pressure. In AACSB's 2025 survey of member schools, visa barriers ranked as the single most significant obstacle to attracting international students and were cited as a major problem by nearly eight in ten schools in the Americas (AACSB, 2025). The immediate exposure is financial: international students, who often pay at or near full tuition, represent a revenue stream that helps underwrite programs, scholarships, and faculty lines, so a sustained decline would directly pressure budgets. But the cost is not only financial. International students are also a principal source of cultural diversity in the classroom, and their presence shapes the global perspective that business curricula are meant to cultivate (Manuel, Shooshtari, & Fleming, 2002). A thinner international cohort would erode that diversity even where revenue could be backfilled.

The longer-term concern is the faculty pipeline. International students make up a substantial share of US doctoral enrollment, particularly in quantitative and STEM-adjacent fields (Educational Testing Service, 2024). A large majority of internationally trained science and engineering doctorate-holders have historically remained in the United States after graduation (National Science Foundation, 2025; Center for Security and Emerging Technology, 2023). If the same pattern holds in business disciplines, today's international doctoral students will become tomorrow's business school faculty. Policies that discourage doctoral applicants, therefore, threaten not only current research capacity but also the future supply and cultural diversity of the professoriate. Because doctoral cohorts are small, even modest declines could have an outsized effect on program viability and on the research productivity that distinguishes US business schools.

H-1B VISA RESTRICTIONS

If the student visa rules govern who can study in the United States, the H-1B program largely governs who can stay and work afterward, making it the hinge between an international student's degree and a US career. A proposed change to the program threatens that hinge, though, as we will show, in a more narrowly defined way than early commentary suggested.

Established under the Immigration Act of 1990, the H-1B visa offers a temporary path for workers with at least a bachelor's degree and specialized skills. Visas are issued for a three-year term and can be renewed for up to six years. As demand outstripped supply, Congress imposed an annual cap of 65,000 visas, plus an additional 20,000 reserved for holders of US master's degrees or higher; both are allocated through an annual registration lottery. Petitions from nonprofits and higher-education institutions are exempt from that numerical cap (Roush, 2025). Filing currently requires two fees: $215 to register for the lottery and $780 for the sponsoring petition.
The composition of H-1B approvals ties the program to business schools. A majority of new-employment approvals go to people already in the United States rather than to workers recruited from abroad: in fiscal year 2024, roughly 54

percent of approved new-employment petitions were change-of-status filings for beneficiaries already in the country, and 71 percent of those were individuals converting from F-1 student status (U.S. Citizenship and Immigration Services, 2024). H-1B recipients are also disproportionately US-educated, under thirty-five, and male (Torry, Ettenheim, & Pipe, 2025). In other words, much of the H-1B population begins as the very international students who generate the educational-services export in the first place; the student visa and the work visa are opposite ends of a single talent pipeline rather than separate systems.

Against that backdrop, the proposed change would place a substantial toll on the program, but its impact is far narrower than its headline figure suggests. Its most consequential component is a $100,000 fee on each new petition, effective for petitions filed on or after September 21, 2025 (White House, 2025). Two limits matter. First, renewals are exempt, and the fee applies only to petitions requiring consular processing for workers abroad, not to in-country changes of status or extensions (Greenberg Traurig, 2025). Because the dominant pathway for international graduates of US business schools — converting from Optional Practical Training to H-1B status without leaving the country — is precisely such a change of status, the pathway those graduates actually use largely falls outside the fee's reach. Second, the fee does not change the number of capped visas available, which remains fixed at 85,000; it alters who competes for them and chills recruitment from abroad rather than reducing the supply of visas as such.
For the hires the fee does reach, the economics are stark. Amortized over an employee's tenure, the fee implies a breakeven salary well above what most new H-1B workers earn (Table 1).

Table 1. Salary required to justify the proposed $100,000 H-1B fee, versus the current average

	Salary
Breakeven if amortized over a 3-year term	$225,000
Breakeven if amortized over the 6-year maximum	$111,000
Current average salary, new H-1B hires	~$100,000

Source: Collins, Krolik, & Gebeloff (2025).

Because the average new H-1B salary sits at or below even the six-year breakeven, the fee may be difficult to justify for the typical hire from abroad, and it falls hardest on the lower-margin employers that have historically relied on cap-exempt access — startups, government and nonprofit research labs, and universities themselves, which face the fee whenever they recruit directly from overseas. Relief is available only through a national-interest exception the government has described as extraordinary in scope, and the fee is the subject of pending federal litigation that may alter or end it. How heavily it ultimately weighs on cap-exempt university and research hiring will not be clear until official figures for the year are released.

The more durable threat to business school globalization may therefore operate through expectations rather than direct cost. Even where a given graduate's own first step would be exempt, a six-figure barrier attached to the work visa signals that the longer-term path to US employment is narrowing. Prospective international students weighing where to study may discount the value of a US degree accordingly, and as talent redirects toward countries with more open pathways, the pool from which US business schools draw future faculty — and much of their classroom and faculty diversity — may steadily thin.

OPTIONAL PRACTICAL TRAINING (OPT)

Optional Practical Training (OPT) allows F-1 students to work in a field related to their degree for up to twelve months after graduation, with a thirty-six-month extension for graduates of STEM-designated programs (Congressional Research Service, 2025). Because it requires no employer petition, no lottery, and no numerical cap, OPT is typically faster and more certain than the H-1B route it often precedes. Over the past two decades, it has become the primary mechanism by which international graduates remain and work in the United States (Congressional Research Service, 2025).

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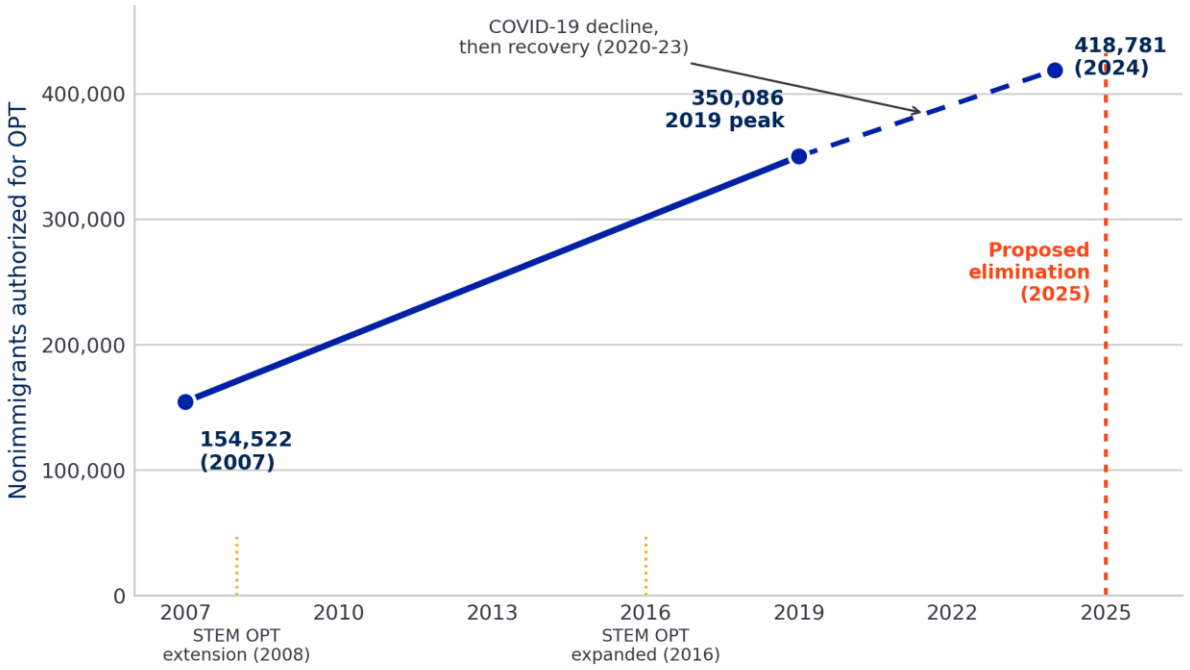

Figure 2. Growth of the OPT-Authorized Population, CY2007–CY2024
Note. The number of F-1 and M-1 nonimmigrants authorized for Optional Practical Training (OPT) more than doubled over the period, from 154,522 in 2007 to 418,781 in 2024. Markers indicate documented reference points; the dashed segment denotes the COVID-era decline and recovery, for which annual values are not published. Vertical markers note major policy events, and the proposed elimination of OPT (2025) postdates the most recent data point. Source: Authors' analysis of Congressional Research Service (2025), *Optional Practical Training (OPT) for Foreign Students in the United States* (IF12631).

The program's growth has been substantial. The OPT-authorized population more than doubled, from 154,522 in calendar year 2007 to 418,781 in 2024, rising every year from 2011 through 2019, dipping during the pandemic, and recovering to a new high (Congressional Research Service, 2025; **Figure 2**). That total far exceeds the 85,000 new H-1B visas available annually, underscoring OPT's role as the primary gateway to post-graduation employment. Its growing centrality is even clearer within the student body: drawing on the Open Doors census, a separate survey with a narrower definition but pointing in the same direction, OPT grew from roughly 3 percent of international students in the mid-1990s to about 25 percent in 2024/25, even as the undergraduate share fell from nearly half to under a third (Institute of International Education, 2025; **Figure 3**). In other words, post-graduation work authorization has shifted from a marginal feature of US international education to one of its central attractions.

This shift carries particular weight for business schools. Many have added STEM-designated programs in analytics, fintech, and artificial intelligence, qualifying their graduates for the thirty-six-month STEM OPT extension and, with it, multiple chances in the H-1B lottery (Congressional Research Service, 2025). As the preceding section noted, the proposed $100,000 H-1B fee would largely spare the in-country OPT-to-H-1B conversion that these graduates rely on, making OPT, rather than the fee, the load-bearing element of the talent pipeline. That makes the program's vulnerability consequential: some policymakers have proposed restricting or eliminating OPT outright (Congressional Research Service, 2025; Peterson Institute for International Economics, 2025). If OPT were curtailed, the most dependable bridge between a US degree and US employment would narrow sharply, and with it a primary reason many international students choose the United States (Brookings Institution, 2025). Because OPT participants are concentrated in precisely the quantitative fields business schools have expanded into, such a change could fall disproportionately on business programs and the international talent they increasingly depend on.

GLOBAL TENSION

The final shock is the most diffuse: a broad rise in geopolitical tension that operates not through any single rule but

through the climate in which students, scholars, and programs move across borders. Its effects run in two directions, dampening the flow of international students into the United States and disrupting the movement of US students and faculty abroad for study and global immersion.

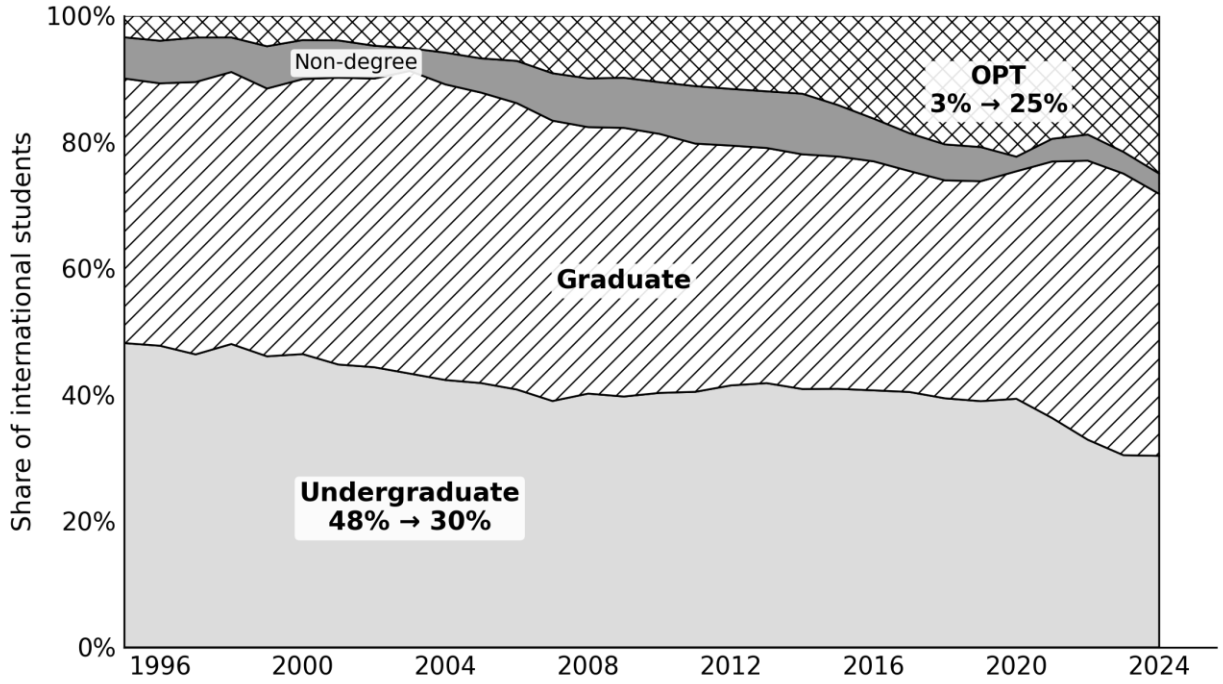

Figure 3. Composition of US International Student Enrollment by Academic Level, 1995/96–2024/25
Note. The bands show each academic level as a share of total international student enrollment. Over the period, the share of international students on Optional Practical Training (OPT) rose from roughly 3% to 25%, while the undergraduate share fell from 48% to 30% and the graduate share held near 41%. The gray band represents non-degree students (e.g., intensive English, exchange, and other non-degree-seeking enrollees), a small and gradually declining share. These OPT figures are drawn from the Open Doors enrollment census and differ in definition from the OPT-authorized counts in Figure 2, which are drawn from a separate federal data series. Source: Authors' analysis of the Institute of International Education (2025), *Open Doors Report on International Educational Exchange*, "International Students by Academic Level, 1954/55–2024/25."

On the inbound side, strained relations with several regions and intensified visa scrutiny of applicants from those regions may discourage prospective students and signal that they would be less welcome. The clearest indication appears in enrollment from China, long the largest source of international students: Chinese enrollment declined to 265,919 in 2024/25, a 4 percent drop, even as India surpassed China as the top sending country (Institute of International Education, 2025). Tension is unlikely to be the sole driver; demographic change and expanding domestic capacity in China also contribute, but the pattern is consistent with students from affected regions increasingly choosing alternative destinations, with direct consequences for the classroom diversity that business curricula are designed to provide.

On the outbound side, state-level measures have begun to constrain the international programming that business schools use for experiential learning. Florida's SB 846 (2023), for example, prohibits public universities and colleges from entering into partnerships or agreements with entities in seven designated "countries of concern," including China, without approval from the state's Board of Governors. The statute defines "partnership" to encompass study abroad programs, faculty and student exchanges, recruiting, and dual-degree programs (Fla. Stat. § 288.860). Such measures can curtail study abroad and global immersion experiences in the affected regions, narrowing the range of experiential learning available to domestic and international students alike. Related provisions that restrict the hiring of graduate research assistants and postdoctoral scholars from those countries have also reportedly chilled faculty recruitment, though courts have partially enjoined them amid ongoing litigation (Mervis, 2025).
Taken together, these tensions affect three of the functions traced throughout this paper: classroom diversity, through reduced inbound enrollment from affected regions; study abroad and global immersion, through restrictions on

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outbound programming; and, where research-hiring limits apply, the faculty pipeline. Because they stem from shifting geopolitics and a patchwork of state and federal actions rather than a single statute, they are also the least predictable of the five shocks and the hardest for any individual school to plan for.

POLICY IMPLICATIONS

Considered individually, several of these shocks are modest, contested, or narrower in scope than their headlines suggest; the H-1B fee largely spares the in-country conversions most graduates use, the visa rule is still proposed, and the litigation over state measures is unresolved. Considered together, however, they converge on the same set of business school functions, and it is the convergence, rather than any single policy, that poses the real threat. Visa restrictions, fixed admission periods, tariff-driven uncertainty, the proposed H-1B fee, the possible elimination of OPT, and rising geopolitical tension each send a similar signal to current and prospective international students: that the United States is a less certain place to study, work, and remain. That signal appears to be registering. In AACSB's 2025 survey of member schools, visa barriers ranked as the single most significant obstacle to attracting international students and were cited as a major problem by nearly eight in ten schools in the Americas (AACSB, 2025).

The financial exposure is the most immediate. International students, who often pay at or near full tuition, are a significant revenue source for business programs; sustained declines would strain budgets, scholarship funding, and faculty lines. But the consequences extend well beyond institutional finance to the educational mission itself. A thinner international cohort erodes the classroom diversity that business curricula are designed to cultivate, and the recent shift away from China, historically the largest sending country, illustrates how quickly composition can change (Institute of International Education, 2025).

The longer-term risk is to the talent pipeline. International students have long made up a substantial share of doctoral enrollment in business and related quantitative fields, and today's international doctoral students are a primary source of tomorrow's business faculty. Policies that deter doctoral applicants, therefore, threaten not only current research capacity but also the future supply and diversity of the professoriate. Because the H-1B fee largely spares the OPT-to-H-1B path these graduates rely on, the binding constraint is less the cost of the work visa than the prospect of OPT being curtailed and the broader signal that the post-graduation path is narrowing.
These effects also extend beyond campus. As skilled international graduates increasingly pursue careers in countries with more open pathways, firms may locate research and development capacity abroad to follow that talent, thereby offshoring the very innovation the tariff agenda sought to reshore (Collins, Krolik, & Gebeloff, 2025). A decline in international enrollment thus carries measurable costs not only for business school globalization but also for the broader economy (Kim, Han, & Lopez, 2025). The unintended result is that policies intended to strengthen domestic industry may erode one of the country's most successful service exports while dispersing future innovation capacity (Brookings Institution, 2025).

The central implication for business schools is that these pressures are unlikely to resolve on their own and largely lie outside any single institution's control. That makes a deliberate, strategic response not optional but necessary, and the subject of the section that follows.

STRATEGIC RESPONSES FOR BUSINESS SCHOOLS

Business schools cannot set tariff, visa, or immigration policy, and the shocks described here are largely exogenous to any single institution. What schools can control is how they adapt. Because the threats affect identifiable functions — revenue, classroom diversity, the faculty pipeline, doctoral programs, and study abroad — a coherent response can be organized around protecting each function. AACSB and EFMD have championed the internationalization of business education for more than three decades (McIntyre & Gilbert, 2021); that same leadership now provides a platform for a deliberate, rather than a reactive, strategy.

Diversify recruitment beyond concentrated source markets. Heavy reliance on one or two countries leaves a school vulnerable to the bilateral tensions now reshaping flows from China. The recent emergence of India as the leading sending country shows that demand can shift rapidly (Institute of International Education, 2025). Schools that build recruitment pipelines and partnerships across South and Southeast Asia, Africa, Latin America, and the Middle East can buffer both revenue and classroom diversity against region-specific shocks. Diversification is, in effect, portfolio management applied to enrollment.

Decouple global learning from physical mobility and design it for signal strength. If inbound enrollment softens and outbound travel is constrained by cost, tension, or state restrictions, globalization embedded in the curriculum can persist where globalization dependent on movement cannot. Not all virtual substitutes are equal, however: experiential activities vary widely in how strongly they signal career readiness, and low-signal formats that emphasize polish over execution — case competitions, hypothetical strategy pitches, exposure-oriented site visits — provide weaker evidence of capability than work tied to real deliverables and accountability (Carrillo, 2026). The more durable substitutes pair cross-border collaboration with genuine execution: virtual consulting engagements with vetted international organizations, cross-cultural student teams producing industry-standard deliverables, and internationally co-taught project courses in which students iterate on feedback and remain accountable for outcomes. Collaborative online international learning of this kind can develop intercultural competence and a global mindset without a visa or a flight (Ballesteros-Sola & Magomedova, 2023; Naicker, Singh, & van Genugten, 2022), and it extends that experience to domestic students who increasingly cannot travel to affected regions, preserving experiential learning as a core, employer-legible feature rather than a substitute that looks global but signals little.

Restructure partnerships and joint degrees to increase flexibility. Deeper agreements with international peer schools enable students to complete portions of a degree abroad if US pathways narrow, through joint and dual-degree structures, articulation and "2+2" arrangements, and, for larger schools, satellite or branch delivery. Such restructuring requires care: where state law restricts partnerships with designated countries, as in Florida, schools must direct these efforts toward permissible regions and secure required approvals (Fla. Stat. § 288.860). Within those constraints, durable partnerships convert a vulnerability, dependence on students physically relocating to the United States, into a more distributed and resilient model.

Protect and rebuild the faculty pipeline. Because the proposed H-1B fee largely spares in-country change-of-status petitions and because universities are cap-exempt employers, schools retain more room to hire international faculty than headline coverage of the fee suggests (U.S. Citizenship and Immigration Services, 2024). Deliberate use of the OPT-to-H-1B conversion and cap-exempt status can keep that channel open. At the same time, prudence argues for hedging: expanding and funding domestic doctoral pipelines, supporting current international doctoral students during periods of status uncertainty, and exploring alternative classifications, such as the O-1 for exceptional scholars. Advocacy to preserve OPT, in particular, protects the mechanism on which much of the future professoriate depends.

Sustain internationally engaged research and curriculum. Maintaining research capacity on global markets, supporting international co-authorship where permissible, and ensuring the curriculum reflects the realities of global business keep a school's intellectual globalization intact even when its demographic globalization is under pressure. A faculty that studies and teaches global business sustains the school's international character, independent of any given year's enrollment.

Lead collectively on advocacy and evidence. Because the underlying policies are exogenous, the most direct lever schools have over the policy environment is collective. Through AACSB, EFMD, and their own leadership, business schools can document and communicate the value at stake to policymakers, including the multibillion-dollar export contribution, the more than 378,000 jobs supported, and the innovation capacity at risk (NAFSA, 2025). Individually, schools adapt; collectively, they can advocate.

No single measure offsets the combined weight of the shocks described here, and none is fully within a school's control. But schools that diversify their markets, embed globalization in the curriculum, restructure partnerships, safeguard the faculty pipeline, and advocate collectively can preserve much of the global engagement built over the past three decades. The alternative — passivity — risks ceding international talent and the leadership that accompanies it to competitor nations already positioning themselves to absorb it.

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Teaching *One Day in the Life of Ivan Denisovich:* An Ethical Reasoning Assignment in Business Education

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ABSTRACT

This paper describes a modular ethical reasoning assignment that integrates ethical frameworks, literary fiction, and the AAC&U Ethical Reasoning VALUE Rubric. Instructors can rotate the central artifact (e.g., a novel) without changing supporting materials or assessment tools. This keeps both students and professors engaged while reducing recycling of student work. The paper summarizes Aleksandr Solzhenitsyn's *One Day in the Life of Ivan Denisovich*, details the supporting materials students use to analyze ethical dilemmas, presents excerpts from student reflections, and includes the instructor's reflexive insights. It concludes with practical suggestions for future improvements. This study contributes to Critical Management Education (CME) by demonstrating how novels can be used to teach management critically in the ethics module of an undergraduate Business and Society course. Further, it shows how a flexible, literature-based ethical reasoning assignment offers instructors high-impact, adaptable pedagogy that promotes deep student reflection, maintains consistent assessment standards, and counters recycled submissions.

KEYWORDS: Critical Management Education (CME), Novels, Solzhenitsyn, Ethics

SUMMARY OF *ONE DAY IN THE LIFE OF IVAN DENISOVICH*

Aleksandr Solzhenitsyn's novel (1962/2014) depicts a single day in a Soviet Gulag labor camp during the Stalinist era. The story follows prisoner Ivan Denisovich Shukhov as he navigates extreme cold, forced labor, and constant surveillance. First published in the Soviet literary journal Novy Mir in November 1962, the novel was a groundbreaking event because it was one of the first openly published accounts of the Gulag system and Stalinist repression (Britannica Editors, 2026, January 16).

The day begins early in the freezing barracks. Shukhov wakes up feeling unwell but knows that reporting his illness could result in punishment. He receives a minor penalty for waking late and is forced to clean the guardhouse before rejoining his work gang. Solzhenitsyn (1962/2014) uses this opening to establish the constant threat of arbitrary punishment that defined camp life.

Much of the day is spent at a construction site in sub-zero temperatures. The prisoners must work quickly before the mortar freezes, and survival often depends on completing tasks efficiently. Shukhov, a skilled bricklayer, takes quiet pride in his work despite the brutal conditions. Solzhenitsyn (1962/2014) portrays labor not only as punishment but also as one of the few remaining sources of personal dignity and self-worth available to the prisoners.

The novel also reveals the complex social hierarchy within the camp. Shukhov respects his squad leader, Tyurin, a tough but fair man who tries to secure better conditions for his gang. Other prisoners represent different survival strategies: Tsezar, a privileged intellectual who receives food packages from home; Alyoshka, a devout Baptist who maintains his faith and tries to help others; and Fetyukov, a desperate and despised prisoner who begs for scraps. Through these characters, Solzhenitsyn (1962/2014) illustrates how individuals respond differently to extreme oppression and scarcity.

By the end of the day, Shukhov reflects on his small successes: he avoided serious punishment, secured extra food, and smuggled a piece of metal for cobbling to earn cigarettes and other small luxuries from other prisoners. These minor victories, though insignificant in the larger system, give him a sense of control and self-respect. Solzhenitsyn (1962/2014) uses this single day to capture both the dehumanizing repetition of Gulag life and the quiet resilience of the human spirit under extreme conditions.

Solzhenitsyn's work (1962/2014) remains a significant literary work, offering a rare glimpse into the Soviet labor camp system. By focusing on a single day, Solzhenitsyn captures both the dehumanizing nature of imprisonment and the quiet resilience people can maintain under extreme conditions. *One Day in the Life of Ivan Denisovich* serves as a powerful reminder of the resilience of the human spirit in the face of hopelessness (Cope & Cope, n.d.). The novel's

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publication in the Soviet Union marked a turning point in Russian literature, contributing to the broader movement of exposing Stalinist crimes. Its legacy endures as a reminder of historical injustices and the enduring strength of the individual.

CRITICAL MANAGEMENT EDUCATION REVIEW

A growing body of scholarship in management education argues that traditional approaches, which emphasize technical skills such as decision-making frameworks and performance outcomes, may not fully prepare students for the ethical and human complexities they will face in their careers. Critical Management Education (CME) offers one perspective for addressing this gap. Rather than focusing solely on efficiency and technical competence, this approach encourages greater attention to reflection, ethical awareness, and the human dimensions of organizational life (Alvesson & Willmott, 1992; Grey, 2004). Experiential learning theories (Dewey, 1938; Kolb, 2014) provide a foundation for this work by emphasizing learning through experience. CME extends these ideas by highlighting the value of helping students question assumptions and develop a deeper sense of ethical responsibility.

Literary fiction offers a particularly effective vehicle for these goals. Czarniawska (2009) suggests that novels can serve as "distant readings" -- rich narrative sources that allow readers to explore organizing, identity, culture, and human behavior in contexts that feel both familiar and removed from daily experience. Because novels blend the real and the imagined, they create space for interpretation and sense-making that traditional business cases sometimes lack. This approach can be especially helpful when exploring complex themes such as power, agency, and moral decision-making; themes that appear clearly in Solzhenitsyn's depiction of life in a Soviet labor camp.

Michaelson (2016, 2021) builds on the humanistic approach by showing how novels and music can help business students reflect on how to live a meaningful professional life, rather than focusing only on what actions to take in specific situations. He argues that mainstream management education often prioritizes skill development and performance outcomes, while giving less attention to ethical engagement and personal formation. Fiction with moral complexity can help students develop empathy and navigate the tension between their own values and professional expectations.

Kosnik, Tingle, and Blanton (2013) similarly highlight the value of combining experiential learning projects with affective triggers such as fiction. They argue that these methods can support transformational learning, shape moral character, and help students move beyond the passive reception of business knowledge. In the present assignment, Solzhenitsyn's novel provides students with a concrete experience of injustice that can be examined through the lens of virtue ethics and human dignity.

Sliwa, Sørensen, and Cairns (2015) provide classroom evidence that these outcomes, deeper personal learning and stronger moral development, are strengthened when students are allowed to choose and analyze novels that already hold personal or cultural meaning for them. When students select their own novels, they tend to invest more of their own experience and emotions, leading to deeper self-reflection. This approach can also give students greater autonomy and encourage them to question assumptions about management and organizing.

At the same time, Sliwa et al. (2015) acknowledge limitations in their work. They note that assuming all students will connect with novels in the same way may disadvantage those from different cultural or educational backgrounds. They also recognize that even well-intentioned efforts to give students more choice can still reflect the instructor's preferences. These observations point to the need for ongoing reflection when using literary texts in ethics education.

Book clubs offer another useful structure for this type of learning. Grenier, Callahan, Kaeppel, and Elliott (2021) argue that fiction-based book clubs can function as valuable non-formal learning environments. In these settings, fiction becomes central to developing social awareness and empathy. Participants engage in dialogue that helps them examine cultural norms and consider issues of fairness and justice. This emphasis on shared, reflective discussion aligns with efforts in management education to foster deeper student engagement.

Taken together, the perspectives of Czarniawska (2009), Michaelson (2016, 2021), Kosnik et al.(2013), Sliwa et al.(2015), and Grenier et al. (2021) suggest that novels can be especially valuable in business ethics education. They can function both as analytical tools and as sources of ethical insight. Solzhenitsyn's *One Day in the Life of Ivan Denisovich* (1962/2014) illustrates this potential. As a detailed account of life under extreme organizational control, the novel invites students to examine power, dignity, resilience, and moral decision-making in ways that conventional

business cases often do not. The following section describes how these ideas were applied in a specific modular assignment for an undergraduate Business and Society course.

ASSIGNMENT DESIGN: ETHICAL ANALYSIS OF ONE DAY IN THE LIFE OF IVAN DENISOVICH

To engage undergraduate business students in critical management education during the ethics module of a Business and Society survey course, the instructor developed a modular assignment that uses Aleksandr Solzhenitsyn's *One Day in the Life of Ivan Denisovich* (Solzhenitsyn, 1962/2014) as the primary analytical artifact. This novel, depicting a single day in the life of a prisoner in a Soviet Gulag, serves as a "distant reading" (Czarniawska, 2009) of extreme organizational oppression, power dynamics, and human resilience.

The novel (Solzhenitsyn, 1962/2014) prompts learners to question managerial orthodoxies (e.g., groupthink, relationship dynamics, leadership interactions & etc.) and instrumentalist views of ethics (profit, efficiency, reputation, compliance, or competitive advantage). Because book clubs facilitate social learning and cultural critique (Grenier et al., 2021) students engaged in small-group discussions of novels rather than large-class sessions. This format allowed participants to explore ideas informally and with lower pressure.

The guiding research question was: "How does one maintain their values when exposed to extreme, dark, or dire circumstances?" Students were asked to apply Aristotle's virtue ethics frameworks (golden mean) and cardinal values (wisdom, courage, justice, moderation), drawn from a provided handout (Rodriguez, 29 September 2024), along with other theories from the course textbook. Those theories included utilitarianism, deontology, and rights-based approaches (Carroll & Brown, 2023).

Supplementary materials (Figure 1) included the documentary film *What We Saw, S3.E8: Echoes of Murder* (Whittle, 2024), and historical context videos such as *One Day in the Life of Ivan Denisovich—Part 1/10* (Daniel, 2009, 12 December) and *The Soviet Union—Part 1: Red October to Barbarossa* (Documentary-History, 2023, 6 October).

Figure 1 Materials Involved in Assignment Creation

Component	Description / Purpose
Central Artifact	Novels (e.g., *One Day in the Life of Ivan Denisovich*), case studies, or films can be rotated each semester
Ethical Reasoning Frameworks	Aristotle's virtue ethics (golden mean), utilitarianism, deontology, rights-based ethics, and other course concepts
AAC&U Ethical Reasoning VALUE Rubric	Modified rubric used to structure and assess the Ethical Position Paper
Supporting Sources	Course textbook (Carroll & Brown, 2023), virtue ethics handout, academic articles, and websites
External / Contextual Materials	Historical documentaries (*What We Saw*, Soviet Union films), Wall Street Journal articles, and other current sources
Student Deliverables	Draft paper, peer review, final APA 7 Ethical Position Paper, and optional group presentation

Note: This modular design allows instructors to substitute different novels or films while keeping the supporting ethical frameworks and rubric unchanged.

The required student paper followed APA 7 format and was structured around the five dimensions of the AAC&U Ethical Reasoning VALUE Rubric (Association of American Colleges & Universities (AAC&U), n.d.). Finley (2011) explored the reliability and transferability of three AAC&U VALUE rubrics (critical thinking, integrative learning, and civic engagement) across multiple disciplines and institutions. The study involved 44 faculty raters who first completed calibration exercises, scoring sample artifacts, and comparing results with expert benchmarks until acceptable agreement was reached.

This rubric calibration process, also emphasized by Baker, Libby, & Cooperman (2013), promotes a shared understanding of performance levels and demonstrates the general robustness of the VALUE rubric approach. In this single-instructor implementation, student Ethical Position Papers were evaluated by the instructor using the modified

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AAC&U Ethical Reasoning VALUE Rubric ((AAC&U), n.d.) as described in the following paragraph. Although formal inter-rater reliability testing was not conducted, calibration principles from Finley (2011) were followed to support consistent and transparent scoring. This approach aligns with prior work on the convergence of VALUE rubrics, assessment, and experiential learning (Rodriguez & Fekula, 2019).

The assigned student paper addressed the following modified dimensions of the AAC&U Ethical Reasoning VALUE rubric:

- Ethical Self-Awareness: Students reflected on core beliefs and values they might adopt in dire circumstances, linking these to virtue ethics moderation (Carroll & Brown, 2023, pp. 128–130) and the golden mean.
- Ethical Issue Recognition: Students identified and explained two to three ethical issues from the novel, defining cross-relationships among them within the complex Gulag context.
- Understanding Different Ethical Perspectives/Concepts: Students defined relevant theories and concepts from the course and justified their selection for the identified issues.
- Application of Ethical Perspectives/Concepts: Students applied the chosen frameworks to resolve the identified issues, explaining their reasoning and potential positive outcomes.
- Evaluation of Different Ethical Perspectives/Concepts: Students discussed alternative actions, objections, assumptions, and implications, defending or critiquing their primary position.
- Grammar and Style
    - Capstone (16–20 points): Writing is clear, concise, and virtually error-free. Demonstrates excellent command of grammar, mechanics, spelling, punctuation, APA 7 style, and appropriate academic voice. Arguments and positions are supported with strong evidence; organization, attribution, and credibility of sources enhance readability and scholarly quality.
    - Milestones (11–15 points): Writing is generally clear with only minor errors in grammar, mechanics, APA 7 style, or organization that do not significantly detract from meaning or credibility.
    - Benchmark (6–10 points): Writing contains noticeable errors in grammar, mechanics, APA 7 style, or organization that occasionally interfere with clarity or credibility.
    - 0–5 points: Writing has frequent or serious errors in grammar, mechanics, APA 7 style, or organization that significantly impair readability and credibility. May include plagiarism problems.

Note: The AAC&U VALUE rubrics aim to be adaptable. As stated by the AAC&U and confirmed in Finley (2011), individual faculty members or institutions may change rubrics by adding or removing dimensions without invalidating their overall purpose, although such modifications may affect the published validity and reliability estimates. In this assignment, a Grammar and Style criterion was added to the original Ethical Reasoning VALUE Rubric to reinforce professional writing standards (including APA 7 requirements) that students might otherwise overlook (to incentivize performance).

In addition to fulfilling the requirements of the rubric, other requirements of APA 7 included an abstract, an introduction to the novel, a conclusion, and a reference list. The rough draft was due mid-semester, followed by in-class peer reviews and discussions focused on *One Day in the Life of Ivan Denisovich* (Solzhenitsyn, 1962/2014) before final submissions.

Final group presentation projects were presented at the end of the semester. They focused on what students learned and how the material affected them, and they discussed the managerial implications. This modular, rubric-aligned design allows any novel or film to substitute as the central artifact while retaining the same supporting ethical materials and assessment structure—thereby promoting freshness, reducing the risk of recycled student work, and fostering critical reflexivity in management education.

SELECT STUDENT REFLECTIONS

To illustrate the assignment's impact on students' ethical reasoning and self-awareness, the following excerpts from anonymous student reflections highlight key themes that emerged from their analyses and peer reviews.

Student A: [The novel] "led me to think about how moral values change over time under oppressive conditions and whether ethical standards can survive in such trials. This novel also changed and transformed my perspective on justice and how I perceive it. Shukhov's unjust imprisonment reveals the brutality of a system that punishes without judgement. This realization gave rise for me to reflect on the vulnerability of legal structure and its capacity for

injustice. The portrayal of work as a source of dignity struck a chord with me. As a person who takes serious pride in his work, it really means something to me to get a job done right. While Shukhov takes meaning from his labor, I found myself questioning whether true dignity can exist within forced labor and pressing conditions, or if it merely serves as a mechanism for survival in his case." (Student A, personal communication March 30, 2025).

Student B: When I talked to my friends, the discussions were more analytical. We dove into the larger themes of the novel, like the dehumanizing effects of the totalitarian regime, the forced labor workers had to go through, and the power roles within the camp. ….These discussions stood out because they focused on big themes like oppression, justice and human nature, offering a deeper more theoretical take on the novel. We made sure to talk about all the ethical aspects that were portrayed through the novel (Student B, personal communication, March 30, 2025**).**

Student C: In my time discussing the novel with classmates and family, I found the novel's cruel environment and harsh labor/prison conditions to be the most profound and distinct topics. For example, when discussing these topics with classmates and family, they were just as surprised as me that prisoners would even be made to work in the freezing cold with little to no clothing/equipment to support them. ….it makes you think about your own life and appreciate what you have." (Student C, personal communication, March 30, 2025).

DISCUSSION

This paper presents an innovative pedagogical framework for integrating literature into undergraduate business ethics education. Using Aleksandr Solzhenitsyn's *One Day in the Life of Ivan Denisovich* (Solzhenitsyn, 1962/2014) as the primary analytical artifact, the assignment helps students explore ethical reasoning through the lenses of virtue ethics, cardinal values, and the AAC&U Ethical Reasoning VALUE Rubric ((AAC&U), n.d.). Assignments are structured around a central research question: how individuals maintain their personal values in extreme circumstances.

This approach supports key goals in management education by encouraging reflection, awareness of organizational dynamics, and the application of ethical theories to real-world situations drawn from the novel's Gulag setting. Supplementary materials, such as historical films and handouts on Aristotle's golden mean and arete (an ancient Greek concept meaning excellence or virtue), enhance student engagement. The modular design also allows any novel (or other significant work) to be substituted as the central artifact, thereby maintaining freshness and reducing the risk of recycled student work. Student reflections indicate heightened self-awareness and empathy, with many noting parallels between the novel's themes of resilience and contemporary organizational challenges.

The Ethical Reasoning VALUE Rubric is particularly valuable in critical management education because it aligns well with reflective, interdisciplinary pedagogy. It enables students to address complex, real-world ethical dilemmas, such as those presented in *One Day in the Life of Ivan Denisovich*, through structured analysis, while promoting transparency, consistent scoring through calibration, and meaningful self-assessment. In doing so, the rubric supports deeper critical thinking and ethical development beyond instrumental (profit-driven outcomes) approaches.

REFLEXIVE SUMMARY, LIMITATIONS, AND OPPORTUNITIES

This study began with the selection of Solzhenitsyn's novel *One Day in the Life of Ivan Denisovich.* I chose it because I believed it would give students a powerful, vicarious experience of ethical decision-making under extreme conditions. Only afterward did the framework of Critical Management Education (CME) emerge as the most useful lens for analyzing and justifying the assignment. In this sense, the pedagogical choice came first, and the theoretical framework followed. While this sequence may appear unconventional, it reflects an authentic process of experiential curriculum development, in which the novel itself led to relevant CME literature on student agency, reflexivity, and non-formal learning.

In short, this assignment worked well to facilitate a fresh way to weave literature into business ethics, using Solzhenitsyn's novel to spark real discussion on values under pressure, with solid support from the VALUE Rubric and extras like the Daily Wire film. Students seemed energized and more connected to the novel than a standard standalone textbook. Schools of Business require survey courses to do some heavy lifting on topics like technology (SI), corporate governance, and sustainability. The heavy writing-intensive load—drafts, peer reviews, teacher feedback, finals, and presentations might clash with other mandated course demands. In addition, I cannot envision a 200-page novel being incorporated into a 7.5-week online course. Undergraduate students might find the pressure of reading a novel, learning about ethics and ethical reasoning, and formulating abstracts within the first four weeks very

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frustrating. Students would simultaneously need to work on textbook topics such as corporate social responsibility, stakeholder theory, corporate governance, ethical issues in technology, and related areas.

Would I do it again? Yes, but only in a face-to-face classroom. This approach represented the kind of engaged experiential learning I hope to incorporate more fully later in my career. One key refinement would be to expand student agency by providing a curated list of novels for self-selection, followed by collaborative "book club" groups in which peers analyze and present the ethical dilemmas embedded in works such as *The Great Gatsby* (Fitzgerald, 1925), which explores ambition and moral decay; *The Once and Future King* (White, 1958), which examines leadership and justice; *The Screwtape Letters* (Lewis, 2001), which addresses temptation and ethical inversion; and *Animal Farm* (Orwell, 1945), which illustrates power, corruption, and inequality.

In my final in-class semester (Fall 2026), students chose from the previously listed novels and worked in small groups. They reported reasonable enjoyment and engagement with the material. In sum, incorporating a fictional novel into the ethical reasoning module promoted diverse perspectives and fostered teamwork—core elements of organizational dynamics—while aligning more closely with critical management education's emphasis on learner-driven experiential learning. By giving students greater authority over text selection and collaborative analysis, this format also created space for personal investment and ethical reflexivity, highlighted in the literature on novel-based approaches.

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Establishing Student Managed Investment Funds: Key Strategic and Operational Considerations

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ABSTRACT

This paper identifies twelve key issues to consider when establishing a Student Managed Investment Fund (SMIF), synthesizing dispersed insights from prior literature and practice into a holistic framework. SMIFs are high-impact experiential learning tools that enhance student outcomes in investment skills, communication, leadership, and critical thinking. The paper explores challenges and decisions related to these issues to aid in creating new SMIFs and enhancing existing SMIFs. Despite the challenges and complexities, the educational and institutional benefits of SMIFs make them a valuable initiative for business schools seeking to align with accreditation standards and promote career readiness.

Keywords: SMIF, student-managed investment funds, experiential learning, financial education, financial pedagogy

INTRODUCTION

A student managed investment fund (SMIF) is, as the name implies, a real money portfolio managed by students. In other words, students direct the investment decisions of one or more real money portfolios. This study first presents the benefits of SMIFs and then proceeds to address twelve issues mentioned in the SMIF literature that must be considered when creating a SMIF. While individual issues have been examined in isolation across various studies, this complementary study provides an integrated presentation as a practical guide to aid institutions in creating new SMIFs and enhancing existing ones. It offers one of the more detailed, practitioner-oriented enumerations of activities students actually perform, and its framework functions as a diagnostic checklist that administrators and faculty can use directly when pitching or designing a SMIF program.

The vast majority of SMIFs are found in colleges and universities, although some SMIFs are managed in high schools (Lawrence, 2008; McInerny, 2003). The popularity of SMIFs has been growing since their initial use in the 1940s. According to the SMIF Consortium, there are 608 traditional SMIFs in the United States, with 292 of those being added since the year 2000 (SMIFC, 2022). The sizes of the funds range from just $2,000 to over $67 million, with the average fund size being just over $1.6 million; the median fund size is $400,000 (SMIFC, 2022).

The popularity of SMIFs has led to a few support initiatives. In 2013, Indiana State University created the Student Managed Investment Fund Consortium (SMIFC), which has grown from 18 member institutions in 2013 to 114 member institutions in 2021 (SMIFC, 2022). SMIFC holds an annual conference filled with speakers, panel discussions, and student competitions (SMIFC, 2022).

BENEFITS OF SMIFS

Although challenges exist in creating a SMIF program, Boughton and Jackson (2020) assert, "the consensus in the literature is that the educational benefits of operating an SMIF outweigh the administrative challenges" (p. 483). SMIFs are widely recognized as experiential learning tools that promote higher-order learning skills (Charlton et al., 2015; North and Stevens, 2012; Saunders, 2015; Tashjian, 2020). Experiential learning is simply "learning by doing," and compared to traditional approaches, is widely recognized in the literature as producing superior learning outcomes (Barnes and Buller, 2021). Key benefits given by Charlton et al. (2015) include "a higher level of student involvement, development of lifelong learning skills, and a deeper educational experience leading to longer-term retention" (p. 1). SMIF programs display characteristics of Higher-Order Learning, Collaborative Learning, and Reflective Learning, all of which are key Engagement Indicators in the NSSE framework and correlate with improved retention and graduation rates (NSSE, 2016).

Regarding SMIFs, Lawrence (2008) notes, "Students learn more by hands-on experience than simply reading about a topic in a textbook" (p. 75). Eighty-one percent of SMIF program directors cited better-trained students as a major benefit of SMIF programs (Lawrence, 2008), and Hysmith (2017) finds that students participating in a SMIF program develop a significantly higher level of knowledge that persists years beyond graduation. Goff and Cox (2016) highlight

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how students managing real money demonstrate a dramatic behavioral shift—becoming more cautious, inquisitive, and analytical, quickly transitioning from speculative trading to adopting a fiduciary mindset. Clinebell and Murphy (2016) report that 97 percent of SMIF alumni believed the experience increased their investment knowledge, while 99 percent agreed that managing real money enhanced their learning environment. SMIF programs are found to improve not only investment-related skills but also communication skills (Charlton, 2015; Clinebell and Murphy, 2016), leadership skills (Stark and Wisniewski, 2019), and interpersonal skills (Clinebell and Murphy, 2016).

A survey by Lawrence (2008) indicates that "almost a third of faculty believed having a real money fund provided synergy and significantly improved the quality of the overall finance program" (p. 75). Two additional benefits given by Lawrence include (1) the media attention showcasing students, the finance program, the business program, and the university, and (2) funding for student activities, resources, and scholarships. SMIF programs are used to promote schools (Gradisher, 2016) and engage with various stakeholders such as alumni, investment professionals, and the community (Boughton and Jackson, 2020; Gradisher, 2016).

Of course, given the benefits of SMIF programs related to educational outcomes and industry engagement, they are found to increase career readiness (Gradisher, 2016) and improve job prospects (Charlton, 2015; Lawrence, 2008) Arena and Krause (2020) find that students who participated in the SMIF program at Marquette University had a higher placement rate and higher compensation after graduation than students who did not participate in the SMIF program.

AACSB, the accrediting body for the business program in CBET, states that, "Experiential learning includes a wide variety of activities such as internships, service learning, study abroad, consulting projects, and other high-impact pedagogical practices" (AACSB, 2022, p. 42). A SMIF is just such a high-impact pedagogical practice that may also include characteristics of an internship and consulting projects. Such recognition by AACSB is just one additional attestation of the importance of experiential learning. It is no surprise that the well-known benefits of SMIFs satisfy many of the elements of AACSB's accreditation standards. AACSB's *2020 Guiding Principles and Standards for Business Accreditation*, frequently mention "experiential learning," "lifelong learning mindset," and "curricular and co-curricular activities embody engagement and interaction between faculty, learners, and business practitioners" (AACSB, 2022, pp. 43-44). Note the overlap between these AACSB standards and the aforementioned SMIF benefits. Results from an alumni survey show that SMIF activities "help achieve the AACSB's goals of engagement, innovation, and impact" (Carlston et al., 2018, p.128). As mentioned in the "Objectives" section below, "Educational goals of SMIFs also often reflect [the] AACSB standards and Assurance of Learning (AoL) requirements" that include "communication skills (written and oral), teamwork/interpersonal skills, leadership and critical thinking skills" (Clinebell and Murphy, 2016, p. 305).

SMIF CHARACTERISTICS

Several characteristics of a SMIF must be addressed when establishing a new SMIF. Oldford (2020) addresses funding sources, governance structure, faculty involvement, recruitment, investment activities, and curriculum integration. Blaylock (2020) recognizes that characteristics of a SMIF "in many instances are shaped by the unique situations and characteristics of the fund's host university, and, in turn, are major factors in how the fund is implemented in the curriculum" (p. 49). Notable characteristics that have been identified in the literature include:

- Objectives
- Assets under management (AUM)
- Funding sources
- Structural organization
- Participant selection
- Continuity
- Governance & decision processes
- Investments
- Costs and use of funds
- Activities
- Resources
- SMIF Documentation

Each characteristic is explained in the following paragraphs. Note that many of these characteristics are interrelated. For instance, SMIF objectives drive activities, and activities may be limited by the available resources.

Objectives The primary objective of the SMIF is to provide students with practical experience in investment decision-making. As such, investment performance goals for the SMIF are often determined (Macy, 2010), but this singular objective may conflict with the educational purpose of the fund (Blaylock, 2020). Goff and Cox (2016) recognize that students may not follow a career in investments, so the objective of SMIF management should apply to a wide variety of careers. Lawrence (2008) recognizes that investment objectives for a SMIF are secondary to its educational mission. Although recognizing the benefit of managing a SMIF with investment goals in mind, Charlton et al. (2015) profile a SMIF program focusing on the non-financial issues of leadership development and the selection of new managers. Stark and Wisniewski (2020) describe how a SMIF the United States Military Academy (West Point) can be used to develop leadership characteristics in Army officers. Clinebell and Murphy (2016) state, "Educational goals of SMIFs also often reflect [the] AACSB standards and Assurance of Learning (AoL) requirements" that include "communication skills (written and oral), teamwork/interpersonal skills, leadership and critical thinking skills" (p. 305). They also find that the normal learning objectives for a SMIF include "security analysis, teamwork, communication skills, and decision-making skills (Grinder, Cooper, and Britt, 1999; Kahl, 1998; Neely and Cooley, 2004; Macy, 2010)" (Clinebell and Murphy, 2016, p. 305). The investment related activities of the SMIF at Midwestern State University support an array of more generalized learning goals; they are critical thinking, knowledge integration, business communication skills, technology skills, and team collaboration (Li, 2020).

Lawrence (2008) finds that 28 percent of schools have more than one SMIF, each with differing investment objectives. Some SMIFs may periodically change their investment objectives (Bowers and Lavin, 2012). Specific investment objectives are occasionally mentioned in the literature, but for the most part, investment objectives – except for those related to asset allocation – are not discussed much. A clear message from the literature is that the vast majority of SMIFs, if not all, are actively managed. Neely and Cooley (2004) report that most of the 61 SMIF programs participating in their survey engaged in stock picking.

While SMIFs allow students the ability to use financial applications and databases for research, the literature is mostly silent, and perhaps many programs lack training with regard to portfolio management technology. These applications would handle administrative tasks, such as the administration of multiple client accounts across one or more brokers and facilitating automatic portfolio rebalancing and submission of trades across multiple portfolios.

AUM Assets under management (AUM) refers to the monetary size of the SMIF. As already mentioned, funds range in size from just $2,000 to over $67 million, with the average fund size being just over $1.6 million; however, the median fund size is $400,000 (SMIFC, 2022). Given that funding may be the most problematic issue when establishing a SMIF, a question is how large the AUM of the SMIF must be to be viable. Kubik (2016) reports that just 13.6 percent of funds are less than $100,000, and 27.2 percent of SMIFs are less than $250,000. However, while most funds are well over $250,000, a viable fund can be created with just a few thousand dollars (Goff and Cox, 2016). Livingston and Glassman (2009) assert that a peer-to-peer loan portfolio using the Prosper Marketplace platform can be much smaller than a traditional equity portfolio. What makes the size of the fund less of an issue is the fact that most brokers allow accounts to hold fractional shares (Bankrate, 2022).

Funding Sources Funds to establish a SMIF can be "large specific gifts from one or several individuals, gifts from corporations or from corporate foundations, gifts from many small donors, gifts from university foundations or other foundations, and from carve-outs of university endowment or foundation assets" (Neely and Cooley, 2004, p. 2, referencing Block and French, 1991; and Lawrence, 1994). Gradisher et al. (2016) discuss funding sources from the university endowment, direct gifts from donors, and private sourcing with an ownership claim. Direct gifts from private donors may be held in an account with the university's foundation or with a separate entity such as a private foundation established specifically for the purpose of holding the funds. In the case of funding from a university endowment, a portion of the university endowment is carved out for students to manage. Lawrence (2008) reports at the time that 28 percent of SMIF funds were sourced from university endowments, and 23 percent was sourced from a single large donor. However, separate from funding source, Lawrence (2008) reports 62 percent of SMIF funds were held as part of the university endowment while 14 percent were held by a separate entity such as a foundation. Johnson (1996) provides a case of students managing a part of the university's bond fund. Mallett and Belcher (2007) profile the cases of managing a slice of the university's endowment and managing funds for a private foundation.

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Private sourcing with an ownership claim is similar to funding from a private donor, but the owner retains the right of ownership to the funds. Lawrence (2008) mentions the rising popularity of students managing investments of private companies and investors. Neely and Cooley (2004) also mention that some SMIFs manage funds for private clients. Mallett and Belcher (2007) profile funds invested through student investment clubs. An investment club is also a model where the donors maintain an ownership claim while also serving as the ones making the investment decisions (SEC, 2022). Goff and Cox (2016) provide a case of a SMIF that began with a student investment club in which students as well as others contributed their own funds to manage. They found that students managed their own money much more conservatively than with investment simulations, but drawbacks to the investment club structure included membership turnover, record keeping (especially with many small contributions), and tax reporting. Their investment club garnered interest by private donors to ultimately contribute to a traditional SMIF.

Cameron University used a line of credit to fund a fixed-income portfolio, and the income from the fixed-income portfolio was used to fund an equity portfolio (Bhattacharya and McClung, 2012; Cameron University, 2022). Student fees have also been used to fund a SMIF (Boughton and Jackson, 2020).

Structural Organization Structural organization refers to how students actually engage with the SMIF, or how the SMIF is integrated with the curriculum, if at all. Structural organization encompasses multiple dimensions. Students can participate in SMIF management either through for-credit courses or extracurricular activities (student clubs) offered through the school (Gradisher et al., 2016) or through an organization separate from the university (Boughton and Jackson, 2020; Mallett and Belcher 2007).

Although structuring the SMIF as an extracurricular activity lessens the problem manager turnover (Johnson et al., 1996), Li (2020) finds that the initial approach of managing a SMIF at Midwestern State University as a club attracted little interest from students. Blaylock (2020) suggests that this is because the cost of participating in the extracurricular activity is the time that could be spent on coursework. Grades for a for-credit course act as an incentive mechanism to hold the students accountable (Blaylock, 2020; Bruce and Green, 2014; Li, 2020).

The vast majority of SMIFs are operated within a for-credit course (Boughton and Jackson, 2020). Lawrence (2008) reports that 71 percent of SMIFs are part of a formal class. Regarding for-credit courses, these courses can be created exclusively for SMIF management or SMIF management can serve as a portion of an existing course (Gradisher et al., 2016). Most SMIFs are administered as part of finance programs, but Mallett et al. (2010) provide a case of a SMIF involving both the economics and finance departments.

Other issues to consider are the number of semesters students should be allowed to participate in and the prerequisites required. While most SMIF programs allow students to manage the SMIF for one or two semesters (Lawrence, 2008) some programs allow students to participate for several years (Lawrence, 2008; North and Stevens, 2012, Boughton and Jackson 2020, Blaylock 2020). Some SMIF programs allow students to participate through a course for one semester due to institutional characteristics (Macy, 2010). Mallett et al. (2010) provides a case of implementing a SMIF program initially in a one semester course but transitioning to a two-semester course sequence. They note the two-course sequence is a key to success given the time needed for training in investment analysis as well as in data services and technology. North and Stevens (2012) profile a SMIF managed over a two-year period through a student club. Goff and Cox (2016) stress the importance of a multi-semester approach and provide their experiences with a two-semester sequence and the prerequisites necessary to prepare students. Blaylock (2020) and Borden et al. (2026) also stress the importance of a multi-semester approach. Blaylock (2020) provides a detailed discussion of the costs and benefits of incorporating a SMIF of up to six semesters through labs and courses of various credit hours while Borden et al. (2026) provide a detailed training outline for students at Villanova University encompassing four years. Similar to Henderson State University's experience as presented by Blaylock (2020), SMIF participation at Gonzaga University is conducted in three one-credit hour courses over three semesters (Barnes and Buller, 2021).

Barnes and Buller (2021) analyzed the performance of SMIFs at twenty business schools and concluded that performance tends to be better when the fund operates as a class rather than a club. They found that "SMIF performance is enhanced by a class (rather than club) structure and a class duration that spans more than one semester." They also noted that the "duration of the class, rather than the number of class credit hours, may be a more important determinant of performance results." A class format typically provides more structured learning, including "a more disciplined and thorough grounding in portfolio management theory and concepts," along with "structured assignments, discussion, and accountability" through exams and grades. Additionally, classes offer greater "consistency, continuity, and frequency of meetings" than clubs (pp. 101–102). They add, "As Daugherty & Vang

(2015) discovered, students made better investment decisions over time based on continued learning and application of sound investment principles" (p. 102). Clinebell and Murphy (2016) find that a common theme from a survey of SMIF alumni is that participating in a SMIF should be at least a one-year-long experience.

Charlton et al. (2015) present a recommended course sequence to prepare for SMIF management. The topic of prerequisites is discussed in the section entitled "Participant Selection & Participation" below, since meeting prerequisite requirements would be a form of selectivity.

Gradisher et al. (2016) also discuss the issue of compensation received by students within a regulatory framework. Compensation received by the faculty advisor deserves a special note. Both U.S. and state securities laws require those who are compensated for providing investment advice to be registered with either the SEC or state regulators (Investment Advisers Act of 1940, 1940). However, exceptions exist for "a lawyer, accountant, engineer, teacher, or geologist whose performance of the services is solely incidental to the practice of the person's profession" (Investment Advisers Act of 1940, 1940, p. 3). In other words, faculty receiving compensation who provide investment advice as part of their normal teaching responsibilities are not required to be registered.

Participant Selection & Preparation Some SMIFs are open to being managed by anyone, while others are quite selective (Lawrence, 1994, 2008). Selectivity at times is governed by the characteristics of the institution or curriculum so that some SMIF programs are not able to be selective (Blaylock, 2020; Charlton et al., 2015; DeBoeuf, 2020; Macy, 2010). However, while some SMIFs may be considered open, some courses in which SMIFs are managed may require prerequisites of some type (Lawrence, 1994), which would add some level of selectivity. Students need adequate training to properly manage a SMIF, and that training may include prerequisite coursework before engaging in SMIF management (Macy, 2010; Charlton et al., 2015). Blaylock (2020) provides a thorough discussion of prerequisites and provides a case in which prerequisite courses are created specifically to prepare students for SMIF courses. Borden et al. (2026) also provide a detailed training regimen over a four year period. Charlton et al. (2015) presents a case where a finance club is utilized to prepare students for SMIF management.

Some selective SMIF programs require a thorough interview process (Charlton et al., 2015; Goff and Cox, 2016; Wingender, 2014) with some allowing or requiring existing student managers to assist in selecting future managers (Charlton et al., 2015; Wingender, 2014). Goff and Cox (2016) describe a case in which student managers are selected in the spring and are assigned training in the summer.

Continuity Continuity refers to both the issue of managing the SMIF between semesters and how management of the SMIF is transferred to each new cohort of students. Manager turnover is a problem (Bolster and Harlan, 2018; Charlton et al., 2015; Johnson et al., 1996) and may lead to students taking a short-term view of managing the fund (Lawrence, 2008). Blaylock (2020) posits that a problem of students having a short-term focus should not be an issue since manager tenure does not, or should not, dictate the portfolio's time horizon. He also suggests that the continuity problem can be ameliorated with an adequate IPS and by using a repeatable multi-semester approach that includes students with varying degrees of experience in managing the SMIF. Other avenues to aid in the transitioning process include upper-level students acting as mentors in a finance club and allowing current managers to participate in new manager selection (Charlton et al., 2015). They also recognize that overlapping managers requires a longer tenure of the managers and would necessitate adding managers who do not have the proper training. Turnover is less of a problem if the SMIF is managed as an extracurricular activity (Johnson et al., 1996) and is managed for more than one semester (Li, 2020).

There are a variety of approaches to manage the SMIF between semesters, most notably the summer term, to include maintaining the portfolio's investments with or without monitoring by the faculty advisor, liquidating the portfolio at the end of spring term, placing stop orders to limit losses (see also Ghosh et al., 2020; Goff and Cox 2016; Li, 2020), and having students monitor the portfolio and recommending trades (Mallett et al., 2010). Goff and Cox (2016) present a case where the SMIF is left unmanaged during the summer.

Governance & Decision Processes SMIFs are normally governed by a constitution, donor letter, or some other type of founding document that establishes the SMIF and the parameters in which it is to operate. The key element in SMIF governance is the involvement of the students. Obviously, a Student Managed Investment Fund must be managed by students, or else it would not be a "student managed" fund (Lawrence, 1994). However, as seen in other sections of this proposal, students need guidance, and that guidance is usually provided by a faculty member acting as an advisor for a club managing the SMIF or as the instructor of the course that involves SMIF management.

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Usually, the major players in a SMIF are students, faculty advisors, external advisory boards, donors of the funds, university administration, and the university foundation. Governance of the SMIF involves delineating the roles, responsibilities, and authority among these parties. Most of the literature focuses on the dynamic between the students and the faculty advisor(s). These are the key players.

Gradisher et al. (2016), list three levels of management discretion of the students:

- Students exercise all management decisions subject to an investment policy
- Students are responsible for all management decisions, subject to veto powers of faculty or university officials (see also Johnson et al., 1996)
- Students make recommendations, and the final decision is made by the faculty advisor or an advisory board.

The levels of discretion may better be explained as a spectrum with varying degrees of discretion between the students and faculty advisor or other form of authority and oversight such as an advisory board.

Regardless of the level of discretion, a formal investment policy statement (IPS) is critical (Boughton and Jackson, 2020; Gradisher et al., 2016). Ninety-two percent of SMIFs have formal written investment guidelines, with the most common guideline being that portfolios be well diversified (Lawrence, 2008). This is in line with industry best practices. Working within the IPS, the faculty advisor establishes the investment decision-making framework (Li, 2020; Macy, 2010).

The majority, but not all, SMIFs have an association with advisory boards (Lawrence, 2008). These boards may consist of additional faculty or industry professionals. Using industry professionals provides an assurance that current practices are incorporated into the curriculum (Lawrence, 2008). Donors provide the funding for the SMIF and may also be involved in delineating the funds' investment objectives. The donors may also continue to participate in ongoing SMIF activities through advice or by serving as the recipient of student reports.

Within SMIF literature, university foundations are mentioned only as a note about SMIF funds being held on account with the university foundation and, in cases where students manage a slice of the foundation's funds (i.e., the foundation is the donor), any investment restrictions related to those funds. Very little is mentioned about involvement from the university administration. This may be because the literature focuses on the ongoing management of the fund, and university administration most often acts simply as the authorizing body when the SMIF is established.

As insinuated by Gradisher et al. (2016), above, a common decision-making process involves students conducting investment analysis and making investment recommendations, presenting and voting on those recommendations, and the faculty advisor vetting those decisions (Johnson et al., 1996; Macy, 2010). Trades are typically placed by the foundation holding the funds or the faculty advisor (Ghosh, 2020; Mallett et al., 2010).

Investments The broad asset classes are equity, debt, and cash. Generally, any asset class beyond these can be considered an alternative investment. Exposure to the asset classes can be through various investment vehicles such as individual stocks and bonds, funds such as ETFs and REITs, and derivatives such as futures and options. The use of margin and short selling may also be employed. Some SMIFs place restrictions on allowable investments and positions related to each of these dimensions while others are open to most any type of investment (Ammermann, 2011; Ascioglu and Maloney, 2020; Blaylock, 2020; Charlton et al., 2015; Goff and Cox, 2016; Li, 2020; Mallett et al., 2010). Equity is the most common asset class found in SMIFs (Lawrence, 2008). Neely and Cooley (2004) report survey results that 93 percent of 61 SMIF programs were invested in US equities; most SMIFs focusing entirely on equity (Mallett et al., 2010). Hughen and Lung (2020) describe how University of Denver's SMIF utilizes options strategies (collar) to manage the risk of equities around earnings announcements. In addition to managing a public equity fund, students at the College of Charleston also manage a fund of private equity assets (Huerta and Pyles, 2020). Livingston and Glassman (2009) describe a fund that uses the Prosper Marketplace platform to manage a peer-to-peer (P2P) loan portfolio.

Use of Funds Operating an investment fund may incur trading costs such as commissions and miscellaneous brokerage fees. These costs are commonly covered by SMIF funds. Besides these costs, Boughton and Jackson (2020) identify other costs to include infrastructure investments in computer classrooms and specialized software, faculty, and travel to professional development events. There may also be administrative costs for such activities as recordkeeping and auditing. These costs can be covered by the SMIF, university/department budgets, or private

sources. Some of these costs are necessary and inherent in operating an investment portfolio (e.g., commissions). However, some expenses could be unrelated to fund management and even considered as perks of having a portfolio to draw funds from. SMIF funds have been used for student scholarships, student trips, trading rooms, educational material, and even air conditioning and basketball courts (Goff and Cox, 2016; Johnston et al., 2020; Lawrence, 2008; Macy, 2010). How funds are used is normally specified by the donor.

Activities The heart of the benefit of experiential learning is the activities the students engage in. The activities normally would require students to apply and synthesize a wide breadth of knowledge areas. Common and major activities in managing a SMIF include the following:

- Security analysis. Security analysis involves analyzing current and prospective investments. Since most SMIFs focus on equity investments (Mallett et al., 2010), most of the security analysis involves analyzing individual stocks. Neely and Cooley (2004) report that most of the 61 SMIF programs participating in their survey engaged in stock picking. Analysis may include
    - Global macroeconomic analysis and forecasting (Charlton et al., 2015; Li, 2020)
    - Sector and industry analysis (Bowers and Lavin, 2012; Li, 2020)
    - Developing screens to identify prospective investments (Charlton et al., 2015; Donaldson et al., 2011)
    - Financial statement analysis (Wingender, 2014) and modeling
    - Developing financial models and valuation (Goff and Cox, 2016; Wingender, 2014,)
    - Researching company strategies
    - Analyzing the international market for the company's goods and services
    - Assessing derivatives strategies
- Portfolio construction. Portfolio construction refers to how individual securities are weighted; this would include the asset allocation, and strategies involving sector rotation and style rotation (Ammermann et al., 2011; see also Charlton et al., 2015).
- Monitoring and adjusting the portfolio. These activities may involve monitoring each individual security in the portfolio, but the focus is on the portfolio overall. These activities may include:
    - Reviewing current economic and market events (Charlton et al., 2015)
    - Measuring portfolio performance (Charlton et al., 2015; Ghosh et al., 2020; Li, 2020)
    - Performance attribution (Charlton et al., 2015; Ghosh et al., 2020)
    - Rebalancing (Li, 2020)
    - Assessing portfolio diversification (Li, 2020)
    - Assessing portfolio risk and evaluating hedging strategies using derivatives
- Making investment decisions. After any analysis, students must decide on which securities to invest in. This usually involves a voting process. However, prior to the voting process students may present oral and written reports to other students followed by a discussion of the recommendations made. (Goff and Cox, 2016; Li, 2020; Macy, 2010)
- Trading. Once an investment decision is made, it must be acted on by buying and selling assets. This is usually conducted by the faculty advisor through a brokerage selected for the SMIF.
- Presentations. Beside the reports students present among themselves, they also may present oral and written reports, normally on an annual or semiannual basis, to other entities such as university administration and faculty, any advisory board, the donor, and the community (Charlton et al., 2015; Goff and Cox, 2016; Johnson et al., 1996; Lawrence, 2008; Macy, 2010; Wingender, 2014,). Some SMIF assignments may also include a newsletter (Goff and Cox, 2016) and presentations as part of a luncheon lecture series (Macy, 2010).
- Assist in selecting future student managers (Charlton et al., 2015)

Some activities may not be directly related to a SMIF. In other words, such activities can occur without a SMIF, but the SMIF provides the focus of interest and media attention to allow these to promote the SMIF. Alternatively, the existence of a SMIF may act as a tool to promote these indirect activities. Examples include lectures series (Macy, 2010), the CFA Research Challenge (Goff and Cox, 2016), and portfolio competitions (Ghosh et al., 2020; Mallett et al., 2010).

Resources There are obvious software and database resources that facilitate investment decisions and portfolio management. Some are more necessary than others. Some resources relate simply to general productivity software such as Excel, Publisher, and PowerPoint (Ammermann et al., 2011; Macy, 2010; Phillips et al., 2018; Wingender, 2014,). Investment related resources include trading rooms (Lawrence, 2008; Mallett et al., 2010), stock tickers (Mallett, 2010), Bloomberg (Daugherty and Vang, 2015; Ghosh et al., 2020; Li, 2020; Mallett, 2010; Wingender,

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2014), Morningstar (Ghosh et al., 2018; Mallett, 2010; Wingender, 2014), Value Line (Ghosh et al., 2020; Wingender, 2014), CRSP (Wingender, 2014), and Yahoo! Finance (Ammermann et al., 2011).

However, the primary resource for a SMIF is the faculty advisor. Boughton and Jackson (2020) find in a survey of faculty advisors that engagement with SMIFs is "a time-intensive endeavor" (p. 4). Neely and Cooley (2003) report from a survey of faculty advisors that time spent in a SMIF course by both students and instructors is more than time spent in other finance courses. "Lawrence (2008) states that most professors who advise SMIFs as a formal class equate the workload to a 4.5-credit hour course, and some schools have difficulty replacing faculty advisors because of the increased workload" (Lawrence, 2008, as cited in Blaylock, 2020, p. 51). Blaylock (2020) also states that advising a SMIF "has at times consumed over half of the advisor's teaching efforts" (p. 51). Lawrence (2008) finds that some funds became inactive due to faculty being unwilling to serve as an advisor for the fund in part because of the extra work needed to keep up with the financial markets (and the reduced amount of time available for research). Lawrence (1994) also finds that some faculty advisors surveyed were concerned about the political fallout of a fund's investments poor performance. Mallett et al. (2010, p. 14) states, "in order for the program to prosper, the director must have significant course relief. Our experience, as borne out in conversations with other program directors, is that most deans do not realize (or are happy to overlook) the time drain of the details of running a successful student-managed investment fund."

In addition to the faculty advisor, many SMIFs utilize local investment professionals as adjunct faculty, advisor board members, and guest speakers (Lawrence, 2008). Some professionals evaluate investment recommendations by students (Mallett et al., 2010), and in some cases, the final investment decision is made by the faculty advisor or an advisory board (Gradisher et al., 2016). Fifty-eight percent of SMIFs have an association with advisory boards (Lawrence, 2008). Using industry professionals better ensures current practices are incorporated into the curriculum (Lawrence, 2008).

SMIF Documentation These characteristics would normally be addressed through two documents. The first and primary document is the document establishing the SMIF, which is normally an agreement between the university/system and the donor of the funds; the SMIF does not exist without it. The second is the Investment Policy Statement (IPS). Neely and Cooley (2004) report survey results that 90 percent of 61 SMIF programs had an investment policy. This practice has been maintained, given that Gradisher et al. (2016) reports that 92 percent of programs have formal written investment guidelines. Horstmeyer (2020) describes how proper policies outlined in an IPS alleviated fears of stakeholders that eventually led to the establishment of a SMIF at George Mason University. Interestingly, Wahl (2000) presents a university that allows students to choose the investment philosophy every year. How each characteristic is addressed in each document is at the discretion of the parties establishing the SMIF. The Founding Agreement could serve as the IPS as well. However, given that the environment in which the SMIF operates may change, how each characteristic is addressed to successfully operate the SMIF may need to change as well. Therefore, the Founding Agreement is normally viewed as a strategic document establishing the general nature of the fund and can only be amended by the donor and senior-level university/system administration. The IPS, on the other hand, although also providing a long-term direction of the fund, is more tactical and should be more easily amended by lower levels of authority, such as the faculty advisor, the dean, or even the students.

Another document to consider is a policies and procedures document that outlines the administrative operations for the fund. These policies and procedures could be incorporated in the IPS, but whereas the IPS would focus on the investment decision making aspects of SMIF management, the policies and procedures would dictate the bureaucratic aspects such as a recordkeeping system (what records to keep, how they are to be kept, and where they are to be stored and retrieved), scheduling meetings for SMIF activities (e.g., arranging a time and place for student presentations), and assessing the performance of the faculty advisor. Alternatively, these administrative tasks could be handled within the existing policies and procedures of the department, college, or university.

CONCLUSION

In summary, the literature consistently highlights SMIFs as high-impact experiential learning tools that enhance student outcomes such as investment knowledge, communication, and leadership skills. Additionally, SMIFs align closely with AACSB accreditation standards by fostering innovation, lifelong learning, and professional engagement. This paper contributes to the scholarly literature by synthesizing insights previously scattered across case studies, surveys, and conceptual articles into a holistic framework of twelve interrelated issues that institutions must address when establishing or enhancing a SMIF; although individual issues have been discussed in isolation at various times, their integrated presentation here as a practical guide represents the primary contribution. Establishing a SMIF requires

careful consideration of numerous interrelated factors such as educational and investment objectives, funding sources, and governance structures, with each factor presenting certain challenges depending on the sponsoring institution. However, this synthesis is limited by its narrative rather than systematic review methodology. In other words, it draws on the author's knowledge of key studies in the field rather than following a pre-defined protocol with formal screening criteria. It also focuses primarily on U.S. contexts, and it lacks any empirical testing of the proposed framework.

These limitations imply fruitful directions for future research such as including empirical tests of which issues most influence learning outcomes and program sustainability and longitudinal studies of alumni impact. Emerging issues related to many elements of this framework may also need to be considered in more detail. Artificial Intelligence (AI) and advanced analytics enhance Activities and Resources but require updates to Participant Selection & Preparation, IPS model-risk provisions, and compliance documentation. Environmental, Social, and Governance (ESG) investing may result in revisions to Objectives, Investments, Activities, and Governance while raising fiduciary and data-validity questions. Fintech tools beyond AI as well as digital assets affect viable AUM, allowable investments, and operational costs yet may introduce custody, volatility, and regulatory complexities. Evolving compliance concerns around expanded asset classes, external capital, AI accountability, and faculty exemptions under the Investment Advisers Act may necessitate proactive legal review and adaptive documentation. Yet, despite the complexities involved, the educational benefits and long-term value to students and other stakeholders make SMIFs a rewarding initiative for business education programs.

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Using Generative AI to Construct Instructional Financial Baselines for Case Teaching

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ABSTRACT

Business cases often provide rich narrative context but lack decision-ready financial statements, limiting students' ability to evaluate the economic feasibility of strategic recommendations. This article proposes a structured instructional approach in which the instructor uses generative AI, industry benchmarks, and case-specific operational data to construct transparent, hypothetical financial baselines for classroom use. Rather than asking students to generate financial statements, the method focuses student effort on interpreting assumptions, testing sensitivity, and linking financial outcomes to strategic decisions.

The approach is illustrated using a multi-farm dairy network case, where production metrics and cost relationships enable the construction of a simplified income statement and balance sheet. Students then explore how changes in key variables—such as feed costs, production yield, and financing structure—affect profitability and risk exposure. By shifting attention from mechanical modeling to analytical reasoning, this method integrates financial thinking into qualitative case discussion without requiring advanced accounting knowledge. The article provides a replicable workflow, classroom activity design, and implementation guidance for instructors seeking to incorporate financially grounded reasoning into case-based courses while using generative AI responsibly in instructional preparation. The instructional approach addresses a common gap in case teaching by linking qualitative strategic analysis to transparent financial reasoning without requiring advanced financial modeling expertise.

Keywords. Generative AI; case teaching; financial modeling; business education; sensitivity analysis; experiential learning

INTRODUCTION

Case teaching remains one of the signature pedagogies of business education, valued for its ability to develop judgment, contextual reasoning, and integrative thinking (Barnes, Christensen, & Hansen, 1994; Garvin, 2003). Many field-based cases provide rich operational and strategic detail, but lack sufficient financial statements or information to support a comprehensive case analysis. As a result, students often develop recommendations based primarily on qualitative reasoning, with limited opportunity to examine whether those recommendations are economically feasible under plausible cost and revenue conditions. Instructors may attempt to supplement cases with financial exercises or additional financial materials, but doing so can require substantial preparation and model construction. At the same time, requiring students to construct financial estimates themselves can shift attention toward mechanical computation, introduce estimation errors, and reduce focus on strategic interpretation and decision-making.

Recent advances in generative AI have made it possible to construct internally consistent financial baselines rapidly from narrative information and industry benchmarks (Dwivedi et al., 2023; Kasneci et al., 2023). When used transparently by instructors to build hypothetical instructional financial approximations, AI can reduce the burden of financial calculations while enabling students to focus on interpreting assumptions, testing sensitivity, and connecting financial outcomes to strategic choices.

This article proposes a structured instructional approach in which the instructor uses AI-assisted modeling to generate simplified, clearly labeled financial baselines for a case. Students then analyze how changes in key assumptions affect profitability and risk. By shifting effort from computation to interpretation, the approach integrates financial reasoning into qualitative case discussion without requiring advanced accounting skills.

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LITERATURE CONTEXT

Case-based teaching remains a cornerstone of business education because it develops contextual reasoning, judgment, and integrative thinking (Barnes, Christensen, & Hansen, 1994; Garvin, 2003). However, many field-based cases provide rich narrative detail without including decision-ready financial statements. When financial information is absent, students often rely primarily on qualitative reasoning, which can limit their ability to evaluate the economic feasibility of strategic recommendations. Prior work in management education has highlighted the importance of integrating financial literacy and quantitative reasoning into non-finance courses, particularly when students are asked to evaluate strategic choices with significant resource implications (Awaysheh & Bonfiglio, 2017; Lawson et al., 2014).

Teaching innovations in business education increasingly emphasize instructional approaches that help students connect conceptual analysis with applied decision-making. Journals focused on pedagogical innovation, including the Business Education Innovation Journal, frequently highlight classroom methods that introduce structured analytical tools while preserving the experiential nature of case discussion (Borden, 2021; Trent, 2023). These approaches seek to provide students with accessible analytical frameworks that support deeper engagement with complex managerial problems without requiring extensive technical training.

At the same time, advances in generative artificial intelligence have begun to reshape instructional design across business disciplines. Recent pedagogical discussions have explored how AI tools can support learning by automating lower-value mechanical tasks while enabling students to focus on higher-order reasoning and interpretation (Dwivedi et al., 2023; Kasneci et al., 2023). Rather than replacing student analysis, AI can function as a scaffolding mechanism that helps instructors construct structured inputs—such as datasets, scenarios, or financial models—that students then interrogate and evaluate.

The instructional method proposed in this article builds on these developments by using generative AI to assist in the construction of transparent, hypothetical financial baselines derived from case narratives and industry benchmarks. By shifting the instructor's preparatory work toward model construction and reserving student effort for interpretation and sensitivity analysis, this approach integrates financial reasoning into case discussion while maintaining the central pedagogical value of judgment under uncertainty. The resulting framework provides a practical mechanism for linking narrative cases to economic feasibility without requiring extensive accounting expertise or additional course time.

APPLIED EXAMPLE: DAIRY FARM NETWORK CASE

The instructional method was applied to a qualitative case involving a multi-unit dairy farm. The first step in constructing the instructional financial model is establishing a transparent set of operational assumptions derived from the case narrative and relevant industry benchmarks. Operational metrics such as herd size, daily production, and staffing levels were extracted from the case narrative. Industry benchmarks, including milk prices and dairy farm cost structures, were drawn from publicly available industry reports. The resulting baseline assumptions shown in Table 1 provide a transparent representation of the variables used to construct the financial baseline. To generate Table 1, the instructor provided the case narrative and used AI to find the industry benchmarks relevant to the time frame of the case. The instructor then prompted AI to identify the case metrics and industry benchmarks necessary to construct a financial baseline, in this example, estimating profitability for the dairy farm in 2024.

Using the assumptions presented in Table 1, revenue and operating costs can be estimated transparently to approximate the financial performance of the firm featured in the case. In this step, the instructor prompts AI to generate selected financial measures based on these assumptions. The instructor may specify the level of detail and the profit measures to be reported. The AI-assisted financial baseline reported in Table 2 provides a starting point for evaluating alternative strategic decisions and conducting sensitivity analysis. The financial baseline is not intended to represent precise financial performance, but rather a transparent approximation that allows students to analyze the financial implications of a qualitative case.

Table 1: AI-Assisted Base Case Assumptions Used to Construct the Financial Baseline

Assumptions (2024)	Case Metrics	Industry Benchmarks
Herd size (cows)	16,400	16,400
Percent of herd lactating	69%	66%
Daily milk production per cow (lbs)	100	90
Total daily milk production (lbs)	1,131,600	974,160
Annual milk production (lbs)	413,034,000	355,568,400
Milk price ($/cwt)*	$20.35	$20.35
Feed cost (% of revenue)	43%	43%
Labor cost (% of revenue)	12%	10%
Herd replacement (% of revenue)	9%	11%
Other operating costs (% of revenue)**	20%	22%

* Milk prices in U.S. dairy markets are quoted per hundredweight (cwt), where 1 cwt = 100 pounds of milk.
** Other operating costs include utilities, veterinary services, maintenance, supplies, fuel, and administrative overhead.

Table 2: AI-Assisted Financial Baseline Derived from Table 1 Assumptions

Revenue Calculation	Case Farm (2024)
Annual milk production (lbs)	413,034,000
Annual milk production (cwt)*	4,130,340
Milk price ($/cwt)	$20.35
Milk revenue	$84,052,419
Cost Structure	
Feed cost (43%)	$36,142,540
Labor cost (12%)	$10,086,290
Herd replacement (9%)	$7,564,718
Other operating costs (20%)	$16,810,484
Total operating costs (84%)	$70,604,032
Operating Profit	
Operating profit (EBITDA)	$13,448,387
Operating margin	16%

The assumptions and financial baseline presented in Tables 1 and 2 were constructed through a sequence of instructor prompts to AI that efficiently generate the financial information needed for students to analyze the financial implications of a qualitative case. In practice, the instructor uses AI to integrate case information with industry benchmarks and to translate these inputs into a transparent set of assumptions that can be used to estimate revenue and operating costs (Table 1). The instructor then prompts AI to generate a financial baseline that illustrates a simplified representation of the firm's operating performance using these assumptions (Table 2). The instructor may also prompt AI to document the underlying calculations used to derive Table 2. These calculations, presented in Appendix A, illustrate the modeling process and provide transparency for instructors seeking to verify AI-generated content and support application of the method to additional case contexts.

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Overall, the AI-assisted financial modeling process enables instructors to provide efficient and transparent learning materials for evaluating how strategic decisions discussed in the case may affect financial outcomes.

DISCUSSION

The constructed financial baseline can be incorporated into a case discussion with minimal additional time or preparation. Students review the assumptions underlying the model and adjust one or two variables to examine their effect on profitability. This activity typically requires 10–15 minutes and integrates financial reasoning into qualitative case discussion without requiring prior finance coursework. Detailed instructional materials, including modeling calculations and classroom exercises used in the instructional approach, are provided in Appendices A and B.

This approach introduces financial reasoning into cases that lack formal financial statements and allows students to connect narrative insights to economic feasibility. By using AI as an instructor preparation tool, the method reduces the mechanical burden of modeling while preserving student ownership of interpretation. Although the financial baselines depend on simplifying assumptions, they provide a transparent framework for discussing feasibility, risk, and strategic sustainability.

CONCLUSION

Generative AI tools create new opportunities for instructors to enrich case-based learning by making financial relationships visible without increasing computational demands on students. By using AI to construct transparent, hypothetical financial baselines, instructors can help students connect narrative analysis to economic feasibility and risk exposure. This framework offers a practical pathway for integrating financial reasoning into case pedagogy while maintaining student ownership of interpretation.

Potential limitations on the instructional value of AI-assisted financial baselines may arise from how instructors manage the quality and transparency of assumptions and verify AI-generated estimates. The generated financial baselines are strictly hypothetical financial approximations and instructors need to frame these outputs appropriately, rather than treat them as precise financial statements. Inappropriate assumptions or insufficient instructor oversight may introduce estimation bias and influence student interpretation of strategic alternatives.

This article contributes to business pedagogy in three ways. First, it offers a replicable method for incorporating financially grounded reasoning into cases that do not include full financial statements. Second, it demonstrates how generative AI can be used responsibly in instructor preparation to create transparent instructional scaffolding rather than replace student analysis. Third, it provides an accessible classroom activity that enables students to test assumptions and examine strategic implications using only basic arithmetic, making the approach suitable for courses emphasizing strategy, entrepreneurship, or management rather than finance.

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APPENDIX A
UNDERLYING CALCULATIONS USED TO CONSTRUCT THE FINANCIAL BASELINE

1. Lactating cows
   Herd size × percent lactating
   16,400 × 0.69 = 11,316 lactating cows

2. Total daily milk production
   Lactating cows × milk production per cow per day
   11,316 × 100 = 1,131,600 lbs/day

3. Annual milk production
   Total daily milk production × 365 days
   1,131,600 × 365 = 413,034,000 lbs/year

4. Annual milk production in hundredweight (cwt)
   Annual pounds ÷ 100
   413,034,000 ÷ 100 = 4,130,340 cwt

5. Milk revenue
   Annual cwt × milk price per cwt
   4,130,340 × $20.35 = $84,052,419

6. Feed cost
   Revenue × 43%
   $84,052,419 × 0.43 = $36,142,540

7. Labor cost
   Revenue × 12%
   $84,052,419 × 0.12 = $10,086,290

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8. Herd replacement cost
   Revenue × 9%
   $84,052,419 × 0.09 = $7,564,718

9. Other operating costs
   Revenue × 20%
   $84,052,419 × 0.20 = $16,810,484

10. Total operating costs
    Sum of operating cost categories
    $36,142,540 + $10,086,290 + $7,564,718 + $16,810,484 = $70,604,032

11. Operating profit (EBITDA)
    Revenue − total operating costs
    $84,052,419 − $70,604,032 = $13,448,387

12. Operating margin
    Operating profit ÷ revenue
    $13,448,387 ÷ $84,052,419 = 0.16 = 16%

Note: Milk prices in U.S. dairy markets are quoted per hundredweight (cwt), where 1 cwt = 100 pounds of milk.

APPENDIX B
CLASSROOM EXERCISES USING AI-ASSISTED FINANCIAL MODELING

The exercises in this appendix illustrate how instructors can incorporate AI-assisted financial modeling into case discussions. Prior to class, students read the case and prepare a qualitative analysis of the strategic issues presented. The instructor constructs the financial baseline described in the manuscript and provides students with the assumptions (Table 1) and the resulting financial baseline (Table 2).

Classroom discussion begins with a short guided exercise designed to familiarize students with the financial baseline and allow them to practice modifying assumptions and interpreting financial outcomes. After completing the practice exercise, students apply the same approach to evaluate strategic alternatives discussed in the case.

Students may perform calculations manually, work within a spreadsheet provided by the instructor, or use AI tools to generate revised financial estimates. Allowing AI to perform calculations helps keep the classroom discussion focused on strategic reasoning rather than computational challenges.

Exercise 1: Guided Sensitivity Analysis

In the first exercise, students examine how changes in key operating assumptions affect the financial performance of the dairy farm network. The instructor provides the assumptions necessary for the sensitivity analysis and directs students to modify specific variables using AI-assisted modeling. Students prompt AI to generate a revised financial baseline using modified assumptions.

Student Instructions

Using the financial baseline provided by the instructor, evaluate how changes in market conditions affect the profitability of the dairy farm network.
Prompt AI to generate a revised financial baseline under 2022 market conditions.

- Milk price increases to $25.30 per cwt (hundredweight)
- Feed cost increases to 47.3% of revenue

Assume that herd size and milk production remain unchanged. Consider this: If milk prices increase while herd size and milk production remain constant, would all operating costs increase proportionally with revenue? How does your answer affect the assumptions used in the 2022 scenario?

Generate a revised financial estimate based on 2022 market conditions using the same format as Table 2 (provided by your instructor). Show how the 2022 estimate compares to the original 2024 baseline.

EXHIBIT B1: Example Output for Exercise 1

Item	2024 Baseline	2022 Scenario
Annual milk production (lbs)	413,034,000	413,034,000
Annual milk production (cwt)	4,130,340	4,130,340
Milk price ($/cwt)	$20.35	$25.30
Milk revenue	$84,052,419	$104,497,602
Feed cost	$36,142,540	$49,427,366
Labor cost	$10,086,290	$10,086,290
Herd replacement	$7,564,718	$7,564,718
Other operating costs	$16,810,484	$16,810,484
Total operating costs	$70,604,032	$83,888,858
Operating profit (EBITDA)	$13,448,387	$20,608,744
Operating margin	16%	20%

Note: Feed cost adjusts with the revised feed-cost assumption. Labor, herd replacement, and other operating costs remain constant because herd size and milk production are unchanged.

The first exercise focuses on understanding how changes in key variables affect the financial baseline. The second exercise extends this approach by asking students to generate additional assumptions and evaluate a strategic decision using AI-assisted financial modeling.

Exercise 2: Strategic Scenario Analysis

After completing the guided sensitivity exercise, students apply the financial modeling approach to evaluate a strategic decision discussed in the case. In the dairy farm case, the focal firm is considering whether to expand through acquisition by purchasing a smaller dairy farm network.

Unlike the previous exercise, students must generate the assumptions necessary to evaluate the acquisition scenario. Students prompt AI to identify relevant financial assumptions and industry benchmarks that would be required to evaluate the financial implications of the acquisition. Students then review the assumptions generated by AI and incorporate those most relevant for constructing a revised financial baseline consistent with the acquisition scenario. Students may find it useful to estimate the financial performance of the target farm first before evaluating the financial implications for the combined entity after acquisition. The example financial output below reflects the performance of the target farm only.

Student Instructions

Using the base case assumptions and financial baseline provided by the instructor, evaluate the potential acquisition of the smaller dairy farm network described in the case.

Prompt AI to generate additional financial assumptions and industry benchmarks necessary to evaluate the acquisition scenario. These assumptions may include valuation benchmarks and financing conditions.

After reviewing the assumptions generated by AI, generate a revised financial model for the acquisition scenario. Use the same format as Table 2.

Your analysis should produce three outputs:

1. Acquisition Scenario Assumptions
2. Revised Financial Baseline
3. Underlying Calculations for New Assumptions

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Example Output for Exercise 2: AI-Assisted Student Analysis

EXHIBIT B2: Assumptions used in the Acquisition Scenario

Assumption	Example Value	Source
Target herd size	8,200 cows	Case information
Percent lactating	66%	Industry benchmark
Milk production per cow	90 lbs/day	Industry benchmark
Total operating costs	84% of revenue	Industry benchmark
Estimated purchase price	$36.9 million	AI-assisted benchmark
Debt financing	70% of purchase price	AI-assisted benchmark
Interest rate	6.5%	AI-assisted benchmark

EXHIBIT B3: Financial Output for the Acquisition Scenario

Item	Acquisition Scenario
Annual milk production (lbs)	177,784,200
Annual milk production (cwt)	1,777,842
Milk price ($/cwt)	$20.35
Milk revenue	$36,179,084
Feed cost	$15,556,006
Labor cost	$3,617,908
Herd replacement	$3,256,118
Other operating costs	$7,235,817
Total operating costs	$29,665,849
Operating profit (EBITDA)	$6,513,235
Interest expense	$1,678,950
Net operating profit	$4,834,285
Net margin	13%

EXHIBIT B4: Example Calculations for the Acquisition Scenario

Lactating cows
8,200 × 66% = 5,412

Daily milk production
5,412 × 90 lbs = 487,080 lbs/day

Annual production
487,080 × 365 = 177,784,200 lbs

Revenue
1,777,842 cwt × $20.35 = $36,179,084

Interest expense
Purchase price: $36.9M
Debt financing: 70%

Debt amount
36,900,000 × 0.70 = $25,830,000

Annual interest payment
25,830,000 × 6.5% = $1,678,950

Designing a Student Managed Private Equity Real Estate Fund for Undergraduate Students

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ABSTRACT

Student managed investment funds (SMIFs) have become an increasingly popular form of experiential learning across finance and real estate programs. Real estate funds exhibit specific challenges from a design perspective. Most real estate investments occur in private markets where there are additional challenges to designing a fund beyond the standard public securities that are the focus of most SMIFs. This paper adds to the literature on SMIFs by providing an overview of how Villanova University structured their real estate fund to allow students to invest in private real estate deals and provide students with the experience of private investments where many of them will ultimately start their careers. The design challenges and solutions should help other universities start their own real estate funds or enhance existing public security focused funds.

Keywords: Student Managed Investment Fund, SMIF, Real Estate Curriculum, Real Estate Investment Fund, Private Equity

INTRODUCTION

Student Managed Investment Funds (SMIFs) have become a common experiential tool in finance and real estate education. Lawrence (2008, 1994) documents the size and growth in the number of universities with SMIFs. That number has continued to grow and SMIFs have become part of the finance education landscape. The original focus of SMIFs was equities but that focus has expanded to fixed income (Howe, Liao, and Varma (2020)), Crypto (Carpenter (2022)) and more recently real estate (Kelly and Letdin (2025)). Abukari, Oldfield, and Wilcott (2021) review the existing research on finance focused SMIFs. Kelly and Letdin provide a review of the current real estate student managed funds across the U.S. and outline the process Florida State undertook to establish their fund in 2020.

Real estate funds provide unique challenges to schools that decide to use this tool as part of their experiential learning portfolio. Real estate assets generally trade in private markets with large transaction sizes and relatively illiquid assets (Gyourko and Keim (1992)). Kelly and Letdin report an average fund size of approximately $3.5 million of the 18 real estate funds they observe. The size and illiquidity of the private real estate market make it difficult to provide scale to students managing the funds if private assets are targeted. One way to overcome this issue is to focus fund investments on Real Estate Investment Trusts (REITs). REITs are publicly traded securities that own real estate assets. By investing in REITs, these funds allow students to value portfolios of real estate assets in a liquid, divisible security. Of the 18 funds discussed in Kelly and Letdin (2025), 6 are REIT only funds, 6 allow students to invest in both public and private assets, and 6 are focused on the private markets. Investing in only REITs overcomes many of the impediments to a real estate fund discussed below and makes the fund look much more like traditional equity focused SMIFs. The downside of REIT only funds is that students value large portfolios of real estate assets but do not get experience in the acquisition and ownership of individual assets that largely trade in private markets.

One of the ultimate drivers in the decision to start a SMIF is the role experiential learning plays in job placement and university reputation. Callanan and McCarthy (2003) survey employers and find one of the biggest concerns of employers is that students have a difficult time applying classroom lessons to real-world situations. One solution is ensuring internships are available and then encouraging students to experience one prior to graduation. Velez, Ribes, and Geiner (2015) review internship related research and find that internships do improve student outcomes across several measures. Clark and White (2010) extend this research to other forms of experiential learning and find that universities use these tools to enhance internships and increase students' hands on experiences including investment management.

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Given the goal of providing students with an experience that will help them secure and keep jobs, a quality internship that closely resembles their workplace is most beneficial. In the fall of 2017, the Villanova School of Business decided that adding a real estate fund to a portfolio of finance-focused funds would benefit the increasing number of real estate majors. Borden, et al. (2025) describes the training and structure of the Villanova Wildcat Fund. The Wildcat Fund is a $2.1 million long only equity fund. The fund is supported by a multi-year training program where students are offered a meaningful experiential learning opportunity to manage an equity portfolio. The existing infrastructure allowed for a natural extension into a real estate fund.

In the discussions leading up to the launch of the fund, the nature of available investment opportunities was an important consideration. Based on the evidence from prior research on funds, students would benefit the most from an experience that was closely related to career placements following graduation. Kelly and Letdin (2025) find that public real estate market capitalization in May 2024 was $1.3 trillion. The remaining $2.9 trillion in investable assets is traded in private markets. Given the vast scale of the markets and student placement opportunities in both sectors, designing the fund to invest in both public and private assets would better prepare students for early-career roles centered on asset valuation. The inclusion of private investments created several challenges that traditional SMIFs do not face resulting in the design and launch of the fund taking almost a year.

The following discussion highlights the hurdles and how they were overcome. This paper is meant to provide guidelines for universities launching real estate funds and allow faculty to see how one university overcame some of the obstacles. This paper complements Kelly and Letdin (2025) and their discussion of Florida State University's fund launch.

THE DILELLA MULROY REAL ESTATE FUND AT VILLANOVA UNIVERSITY

Background

The DiLella Center for Real Estate was established in 2007 in the Villanova School of Business (VSB). At the time the center was established there were no real estate courses offered in the school. The early focus of the Center was establishing a real estate curriculum and creating experiential opportunities for the students. As the program has matured, the curricular responsibilities have been transferred to the Department of Finance and Real Estate, while the DiLella Center focuses more on experiential opportunities and developing stronger relationships with the external constituencies of the industry. The recurring experiential programs sponsored by the Center include a career conference each fall and a national case competition hosted each spring. Based on the positive outcomes of its initial offerings, the Center began working on developing further professional development opportunities in 2017. One recurring point of discussion was the establishment of a student managed real estate fund. VSB and the Finance Department had a history of success in the creation of student managed funds that started with a strong training program requirement for participating students (Borden, et al. (2025)).

A team consisting of Center leadership, advisory board members, and University and College leadership met multiple times in the summer of 2017 to discuss the feasibility of a real estate fund. These conversations led to the establishment of a committee to create and propose a fund structure with the hopes of launching the fund in 2018. Members of the exploratory team agreed that the fund should allow investment in a broad spectrum of real estate assets including private equity investments. This type of fund would prove to have many complications that existing funds that focused on only publicly traded securities did not face. In a process similar to the FSU REIT Investment Fund model documented by Kelly and Letdin (2025), the Center benchmarked its operations against other university-led private investment funds.

Original Design and Implementation of the Fund

During the spring of 2018, the fund structure was designed and finalized. The structure had to be designed with limited university liability and the capacity for students to make investments across a wide range of real estate assets. Another important consideration was the deployment of Center personnel. The faculty and staff attached to the real estate program had little bandwidth to oversee the fund, so the fund design had to be self-contained as few additional resources were provided. The fund was set up to act as a limited partner in its investments to avoid liability issues for the university. An additional benefit to this structure was the fund did not require SEC investor status. Dollars donated to the fund are part of the university endowment, so Villanova University is the investor of record. This structure is helpful when pitching sponsors to allow the students to participate in a deal. Managed as an extracurricular initiative,

the DiLella Mulroy Fund utilizes a tiered hierarchy: a VSB Business Fellow acts as Chairman, supported by five senior student managers and ten junior student analysts. Positions are filled via a formal application process, with current leadership selecting successors in consultation with Center faculty and staff. To foster broader engagement, students outside the core team are encouraged to participate as interns or observers.

Some SMIFs the Villanova team talked with set their fund up as a normal private equity investment vehicle. The university is the General Partner (GP) and investors are provided returns on their investments as normal limited partners. Villanova was not comfortable in taking on a GP role for their fund, so an alternative structure was designed. For the Villanova fund, donors contribute to the fund and do not receive a return as they are not "investors" but rather donors to the fund. Given the undergraduate student focus of the fund and risk in real estate investing, the possibility that some student investments will generate returns and others loss of principal led to this donor versus investor source of original capital. Donors understood returns earned by student investments are returned to the fund, the operating account, and the DiLella Center. Donors to the fund were given the opportunity to serve on the initial investment committee as one of the five available member positions. Two naming gifts were provided to start the fund, and a fundraising effort was undertaken to get the fund to a reasonable size to begin operations. The initial target for fund donations was $1,000,000. By the end of the fall of 2017, the fund was operational with $50,000 for an operating budget and $575,000 in investible assets.

In the spring of 2018, the first team of student managers was selected and given the task of creating the fund's Investment Strategy (IS). The team completed their task and a formal IS was approved by the fund's Investment Committee (IC). The fund was to invest across the risk spectrum of available private investment opportunities (core, core+, value-add, and opportunistic) with limited concentrations in each risk bucket. The fund structure provides students with the flexibility to invest in public securities. The IS can be periodically adjusted in accordance with market dynamics. Fund investments started in fall of 2019. The original target size of fund investments was $25,000-$50,000 per opportunity. Students would source investment opportunities, perform due diligence, prepare a full investment memorandum, and present to the IC for approval. The IC consisted of the Villanova University Chief Investment Officer and a variety of experienced real estate professionals representing different asset classes and sectors. In fall of 2019, the true investment work of the fund began. Students met every week to assign fund-related tasks and discuss investment opportunities. Once students identify potential deals, the management team undergoes a rigorous underwriting and evaluation process to determine if an opportunity warrants a formal pitch to the IC. The first successful investment of the fund occurred in October 2019. Figure 1 contains a timeline for fund activities.

Figure 1: DiLella/Mulroy Fund Development Timeline

Period	Milestone
Spring 2017	Initial discussions with other student-managed funds regarding structure and best practices
Summer 2017	Meetings with university leadership and DiLella Center administration to explore feasibility
Fall 2017	Lead gifts secured; fundraising campaign initiated among alumni and University stakeholders
Fall 2017	Original operating and investment budget finalized, providing foundation for fund launch
Spring 2018	Fund structure and investment mandate designed by students and faculty advisor
Fall 2018	Fund becomes fully operational; inaugural student leadership cohort selected
Spring 2019	First investments executed, marking the Fund's entry into active real estate capital deployment
Summer 2020	First post-COVID investment completed, demonstrating fund resilience during market disruption
Fall 2025	Fund reorganized to reflect current industry standards

Operationally, the student managed fund uses both a restricted and an investment account. The restricted account is utilized to manage expenses which include, but are not limited to, a Business Fellow stipend, student site visit travel expenses, legal expenses, data subscription services, printing supplies and a year-end recognition dinner. A portion of each donation and investment earnings are deposited into this account.

Early Hurdles and Lessons Learned

As with any new endeavor, the early days of the fund had its challenges including the Covid pandemic beginning in

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the spring of 2020. The fund was able to make investments before the shutdown, but the last half of the spring semester in 2020 was completely shut down as the university determined how to deal with the crisis. The university returned to campus and was partially in person in the fall of 2020, and the fund began operating again in a virtual environment. These interruptions unearthed some challenges. The first and most difficult was the sourcing of deals. Most of the delas the fund was investigating were in the $10-$50 million range and beyond. Obviously a $25,000-$50,000 investment is a nuisance to the main investors in these private deals. The unique role of the fund in these deals also required more information flowing to it than that size of investment would typically warrant. Fund leadership determined that high-quality investment opportunities would primarily need to be introduced through the fund's management team and the broader Villanova real estate community due to the unique nature of information requirements and small investment size. Deals generally come from friends of the fund that structure the investments as co-investments to the general partner with limited liability for the fund. Crucially, the Business Fellows managing the fund leverage their deep private equity experience, collaborating with investors and donated legal expertise to ensure mutually beneficial terms. While the initial design prioritized deal sourcing as a primary learning outcome, experience has shown that this goal has proven difficult for students to achieve in practice.

The second hurdle was the number of deals and size of deals the students would undertake. Since this fund is extracurricular, the time demands it puts on the student managers must be reasonable and allow for classes and other activities. The number of deals the fund would invest in each year was scaled back (partially to help solve the deal flow problem) and a quality versus quantity approach was the focus. The students generally invest in 3-5 deals per year and look at twice that many. This provides great experience for students as they must complete comprehensive due diligence on each deal. The scaling back in the number of deals opened the possibility of making bigger investments with the maximum deal size being increased to $100,000. This increased size and relatively longer investment time horizon also led to a need to increase the overall fund size. Eventually, investments will start returning capital to the fund and a virtuous cycle will begin, but the optimal size of the fund necessary for this type of structure is larger than initially planned. The DiLella Milroy Fund has evolved since its inception in a way that is similar to how real estate investment business changes. To date, the fund has successfully completed 12 private real estate investments and one REIT investment. Of the investments, six have been realized with seven investments still being managed by sponsors. Table 1 summarizes the fund performance to date. Panel A has the current portfolio positions and estimated performance. Panel B has realized returns on investments that have closed.

Current Fund Structure and Future Considerations

In the fall of 2025, the fund had a leadership turnover with a new Business Fellow coming on board as the fund advisor. One of the goals of the fund under the new leadership was to reorganize to become a multidisciplinary platform designed to mirror the team structure, governance, and accountability of an institutional real estate organization. This evolution has been driven both by the fund's growth and by an intentional effort to prepare students for the breadth of opportunities within the real estate sector. The increasing volume of deal flow, combined with the ongoing responsibility of managing existing investments, necessitated a more deliberate organizational framework. In response, the fund is now organized into three dedicated functional teams among its student participants: acquisitions, asset management, and capital markets. Each team has a division manager, vice presidents, and analysts with interns that join the team during the spring semester. The acquisitions team is comprised of most of the fund's students and serves as the front end of the investment lifecycle. Team members are responsible for building relationships with sponsors, sourcing potential investment opportunities, and conducting preliminary evaluations of prospective deals. This work includes market analysis, property and business plan review, sponsor evaluation, and initial deal screening to assess the overall risk profile and alignment with the fund's investment criteria.

The table below presents the DiLella Mulroy Student Managed Fund's complete portfolio as of early 2026, comprising active co-investments across private real estate asset classes and a publicly traded REIT position, as well as fully realized investments. Dollar figures reflect original investment amounts and are not indicative of current implied market value.

Table 1: Portfolio Overview – DiLella Mulroy Student Managed Fund

Panel A: Current Portfolio

Type	Investment Date	Initial Commitment	Fund Investment	Projected EM	Projected Equity Market Value	Projected Profit
Housing	9/9/2021	$50,000	$50,000	3.70×	$185,000	$135,000
Multi	6/1/2022	$100,000	$100,000	1.55×	$155,000	$55,000
Industrial	9/19/2022	$100,000	$58,797	1.72×	$101,131	$42,334
Industrial	6/1/2023	$51,750	$51,750	1.62×	$83,835	$32,085
Retail	6/30/2024	$100,000	$100,000	1.88×	$188,000	$88,000
Retail	2/11/2025	$100,000	$100,000	1.73×	$173,000	$73,000
Multi	4/9/2024	$52,675	$28,703	1.08×	$31,037	$2,334
Total		$554,425	$489,250	1.90×	$917,003	$427,753

Panel B: Realized Investments

Type	Investment Date	Sale Date	Initial Investment	Total Equity Returned	Profit	Investor IRR	Investor Multiple
Syndication	3/1/2019	10/5/2021	$50,000	$101,500	$51,500	37.55%	2.03×
Syndication	10/1/2019	2/3/2022	$50,000	$113,548	$63,548	31.45%	2.27×
Retail	2/10/2021	1/30/2024	$25,000	$40,182	$15,182	22.00%	1.61×
Syndication	12/31/2020	7/30/2021	$50,000	$57,500	$7,500	28.28%	1.15×
Retail	3/17/2021	2/21/2025	$25,000	$94,250	$69,250	42.44%	3.77×
Senior Living	7/1/2020	8/15/2025	$100,000	$217,768	$117,768	18.19%	2.18×
Total			$300,000	$624,748	$324,748	29.99%	2.17×

The acquisitions team evaluates opportunities with the fund's target metrics in mind and is also charged with exercising discipline, recognizing that not all opportunities will be pursued due to investment profile, risk, or timing, and that thoughtful rejection is as critical to the fund's success as execution.

The asset management team is a smaller, focused group responsible for overseeing the fund's existing portfolio and evaluating investments post-acquisition. The team reviews portfolio performance, maintains ongoing relationships with operating partners, and tracks operating results relative to underwriting assumptions and approved business plans. In addition, the team is responsible for compiling asset allocation summaries, monitoring the fund's cash position, and compiling the fund's annual investor report. Students evaluate the portfolio throughout the academic year and present the investor report in late spring. This division reinforces the principle that value creation does not end at acquisition; rather, long-term performance is driven by disciplined execution. Through this oversight role, students gain exposure to real-world operational considerations and develop a practical understanding of how market conditions, capital improvements, and management decisions can influence investment outcomes over time.

The capital markets team is typically comprised of seniors who previously served on the acquisitions team and supports both the acquisitions and asset management teams. The team focuses on the evaluation of debt and equity structures associated with potential new investment opportunities and assesses sensitivity and return scenarios and considers how financing decisions influence overall risk and performance. This function introduces students to the relationship of capital markets in conjunction with the acquisitions process emphasizing how interest rates, leverage,

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and equity requirements shape outcomes across the life of an investment. Additionally in 2026, the capital markets team launched the first fund raising campaign since the original donation and fund's inception.

While each division has distinct responsibilities, the fund is intentionally structured to promote collaboration and cross-functional understanding. The fund advisor meets weekly with the students for a 90-minute session. During these meetings, students review the deal pipeline, evaluate prospective investment opportunities as a group, and present outputs from the deal screening tool to assess opportunities and associated risks. The session also includes a review of the existing portfolio and concludes with working breakouts within each division, followed by cross-team discussion and presentations.

For each new investment opportunity, students are required to prepare a formal Investment Committee presentation. Presenters include a member of the asset management team to provide an overview of the current portfolio, members of the acquisitions team to cover the market, location, property, and sponsor, and a representative from the capital markets team to address the proposed capital structure. This evolving fund structure ensures that students develop both specialized expertise and a holistic understanding of the investment process.

Oversight of the fund is provided by the fund advisor and Investment Committee, which guides strategic direction, maintains governance standards, and ensures alignment with the fund's educational mission. This framework balances student autonomy with professional oversight, fostering accountability while preserving the experiential learning environment that defines the fund. Figure 2 contains an organizational chart for the current fund structure.

Figure 2: DiLella Mulroy Student Managed Fund – Organizational Structure

The DiLella Mulroy Student Managed Fund operates under the Villanova School of Business, DiLella Center for Real Estate. The Fund is organized into three functional teams—Acquisitions, Asset Management, and Capital Markets—each led by a Senior Vice President and staffed by Directors, Vice Presidents, Senior Associates, Senior Analysts, Junior Associates, and Junior Analysts. The organizational chart below reflects the Fund's current personnel structure as of the 2025–2026 academic year.

DiLella Mulroy Student Managed Fund **Villanova School of Business | DiLella Center for Real Estate**

Acquisitions Team		**Asset Management Team**		**Capital Markets Team**	
Senior Vice President		Senior Vice President		Senior Vice President	
Director	Director	Director	Director	Director	Senior Associate
Vice President		Senior Associate	Senior Analyst	Senior Analyst	Senior Analyst

Junior Associates & Analysts					
Junior Associate	Junior Associate	Junior Analyst	Junior Analyst	Junior Analyst	Junior Analyst
Junior Associate	Junior Analyst	Junior Analyst	Junior Analyst	Junior Analyst	

Student Outcomes and Testimonials

The central reason for the efforts to start the SMIF at Villanova was to improve student's ability to find great jobs and thrive in those positions once they started. Overall, student outcomes have exceeded expectations. Student placements in both full time jobs and internships are very high across VSB, so those numbers are hard to compare. In general, almost every real estate student looking for a job or internship in the industry finds one. The notable outcome for students that have participated in the Fund is the quality of the jobs. The job placement looks like a full time MBA program and not an undergraduate program. Students have been placed in household real estate names including Blackstone, Tishman-Speyer, CBRE investments, and Wells Fargo. The dream job for many students is an analyst position at an established real estate private equity firm. Fund analysts have secured these positions at firms such as Equus, Cityline Capital, Sycamore, Warren Street Investors and many others. The placements for the fund leadership teams have resulted in strong competition to secure those positions by fund participants. The new capital markets

team for the fund created a pitchbook as part of their fundraising efforts and interviewed many of the graduates of the program. Below are some of the testimonials they obtained. The names have been removed for anonymity purposes.

From a senior fund manager at the time of the first deal's closing: "Being a part of the DiLella Mulroy Fund was my most rewarding academic experience while studying at VSB. Having the opportunity to take this deal from initial evaluation to the Investment Committee gave me an unmatched competitive advantage as I prepared for a career in real estate. Seeing the success of these deals is a testament to the students for their hard work and to leadership and the investment committee for their guidance and expertise."

From a fund manager that graduated in 2020: "Most people know that realizations of real estate investments can take years. As an alumna, seeing these quick returns is extremely rewarding and is evidence of hard work. I am so proud of the students' efforts that have come before me and of those after me. The investment was particularly special as we were able to tour the physical asset and learn more about our own local market."

"Joining the Dilella Mulroy Fund not only brought me closer to the Villanova real estate community, but it gave me a unique opportunity to learn how to look at real estate from an investor's perspective and see our investments come to fruition. Being involved in the fund has helped me learn strategies, technical skills, and build foundational knowledge before starting out in the real estate industry."

From one of the first fund managers: "As one of the first fund managers of the DiLella Mulroy Student Managed Fund, it has been great to see how increased resources and strong alumni engagement have created a more robust learning experience for students."

"The DiLella-Mulroy Fund was one of the most impactful experiences of my time at Villanova. It gave me the chance to see beyond the classroom and understand what the real estate industry is really like. The fund also taught me how to work on a team in a way that reflects real transaction dynamics. I gained exposure to investment committee discussions, and the types of questions industry professionals prioritize. I'm very grateful for everything the fund taught me, and it remains one of the most valuable parts of my college experience."

"Being part of the DiLella Mulroy Student-Managed Real Estate Fund was a standout experience during my time at Villanova. Working on real investments gave me a much deeper understanding of how deals come together and helped me build practical skills that apply to my job now. Additionally, connection with other students, meeting alumni, and professionals who were willing to share their experiences and offer guidance had a real impact on my career path, and several of those relationships continue to influence me today. The Fund gave me hands-on learning, meaningful mentorship, and a clearer direction for where I wanted to go in real estate."

Finally, from an investment committee member and employer: "Participation on a real estate student managed fund is the type of experience that stands out to employers on a college student's résumé. When these Villanova students enter the workforce, they are well prepared for the challenges that will come. The DiLella Mulroy Fund allows students to see what steps are necessary to ensure the success of an investment. I can speak on behalf of the entire Investment Committee when I say we are excited to see what the future holds for this Fund and the students involved."

CONCLUSION

The implementation of a student managed real estate investment fund at Villanova University has been an ongoing challenge. The positive outcomes for students that participate in the fund are undeniable and the fund's place as an important experiential learning experience within VSB has been cemented. Implementing a fund of this type requires commitment at all levels of the university. Creating a dynamic and agile structure to support the effort allows for a continuous evolution of the structures surrounding the fund and allows leadership to respond to challenges created by this type of experiential learning opportunity.

The DiLella/Mulroy Fund provides Villanova students with an invaluable tool to translate the lessons they learn in the classroom to a hands-on experience investing real money into live real estate deals. Students also get to track the outcomes of those investments and report on them to real estate professionals. These experiential opportunities translate to relatable talking points for internship and job interviews and prepare students to immediately contribute when they begin their careers following graduation.

The implications for business education support previous research where providing meaningful experiential opportunities for students to enhance the lessons learned in the classroom. Finance/Real Estate programs that have an

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interest should pursue opportunities to allow their students to make investments across several different asset classes including real estate. The challenges for each asset class will be different, but the opportunities for students to make real investments are worthwhile. Starting and running a SMIF of any kind should be undertaken with care and the full support of university leadership to maximize the likelihood of success for the endeavor.

There are many opportunities for future research around SMIF implementation in real estate programs. Measuring student outcomes as these funds mature in a more complete way is one potential focus. How does participation in a fund impact job and internship placements formally? How does the experience impact the career trajectory as the students move through their careers? Another area for future study is to cross-sectionally measure impacts on student experiences as more schools add SMIFs to their educational portfolio and document best practices.

Hopefully, this paper provides insights for other institutions considering creating real estate investment vehicles for their programs. The benefits of this type of experiential opportunity are many, but it is a considerable undertaking that will require university resources and multi-level support for success to be achieved.

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A Study of Business Student Individual Factor Perceptual Changes: Pre, During and Post-COVID Perceptions

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ABSTRACT

Over the past 13 years, business students' perspectives regarding face-to-face and online were surveyed. This paper addresses the changes in online students' perspectives over that time frame – pre-, during and post-pandemic. Results indicate that online business students' perceptions have changed over the years with respect to their motivation, discipline, self-directed, time investment, cost investment, preference for FTF education, happiness with online education, and the appropriateness of online education. Their perceptions of independence and schedule flexibility did not significantly change over this timeframe. The AACSB-accredited, Jesuit, Catholic University has a strong focus on face-to-face teaching. This article offers insight into the students' transition with respect to their individual educational environment preferences, which may affect student learning.

Keywords: Online Education, Individual Perceptions, Students

INTRODUCTION

Over the past few decades, students' and instructors' perspectives on online and face-to-face (FTF) education have been researched. This study is unique as it demonstrates the students' perspectives with respect to individual factors from prior to the pandemic - when student preference and experiences were mainly FTF, through the pandemic when students were forced online, to their perspectives following the pandemic, when they may have a choice. The study has tracked the same University setting through these transitions. We are unaware of any similar studies that outline the transition and current state of these students' perspectives.

Past research into student perspectives on online education has found that as students experience more online education, their perspectives of the equivalences between online and FTF improve (Dobbs, Waid, & del Carmen, 2009; Fish & Snodgrass, 2014; Platt, Amber & Yu, 2014). Our study adds to this growing body of research. Prior to the pandemic, FTF education was the primary educational method at the University of study as very few online courses were offered. The initial study was conducted in the fall of 2012, and the individual factors studied were highlighted in prior research (Fish & Snodgrass, 2014). Individual factors are specific to the individual student and include: motivation, discipline, self-directed learning and independence, schedule flexibility, time and cost investment, preference, happiness and appropriateness for learning environment. Initial results demonstrated a strong preference by students for the traditional FTF education for almost all factors studied. In 2018, students' perspectives were again analyzed, and results continued to demonstrate a strong preference for students for the traditional FTF education on most factors studied. The pandemic caused a radical change in higher education delivery as FTF classes were virtually eliminated, and online became the norm. Students' perspectives during the pandemic demonstrated significant differences in students' perspectives of online vs. FTF education on every individual factor. In 2021, during the pandemic, students' perspectives revealed differences in perspectives from prior years on motivation, discipline, self-directed, time and cost investment, preference for the opposite environment, happiness with the environment and appropriateness of online (Fish & Snodgrass, 2022). Students' perspectives on independence and schedule flexibility of online did not change over the years (Fish & Snodgrass, 2022). As noted in prior research, the educational environment – and students' perspectives following the pandemic - may be very different than before and during. This research evaluates the transition of one business student population at the same University over 13 years.

REVIEW OF THE LITERATURE: INDIVIDUAL FACTORS UPDATE FOLLOWING THE PANDEMIC

This literature review is not intended to be a comprehensive review of students' perspectives. (Readers interested in a deeper literature review on the individual should consult Fish & Snodgrass (2014; 2015).) Based upon research, the survey conducted over the years included three major sections: individual factors, program factors and demographic questions.: Individual factors studied are specific to the individual include motivation, discipline, self-directed learning and independence, schedule flexibility, time and cost investment, preference, happiness and appropriateness for learning environment. Program factors, which are decisions that the instructor makes in developing the course, studied include academic difficulty, academic integrity (cheating), student-to-instructor interaction, student-to-instructor

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interaction, and program technologies. Demographic questions for students included questions on gender, age, class rank (undergraduate – freshmen, sophomore, junior, senior or graduate), undergraduate major or graduate program and potential concentration (graduate), online experience, self-reported level of technological understanding, whether the student was a transfer student, and if the student took an online course, the number of online courses taken. Student attitudes and perceptions are important antecedents of the student's inclination toward online learning (Chawla & Joshi, 2012), and our purpose here is to highlight research on student perspectives on the individual factors since the pandemic.

Motivation. Past research on student motivation indicated mixed results on motivation. Other studies following the pandemic reported that students perceive that they are more motivated in FTF classes (Quesada,Gabuardi, Vargas, Quiros and Chaverri, 2023; Yan & Pourdavood, 2024). Increased motivation was attributed to immediate interaction, social presence and community, environmental factors, convenience and flexibility of online education. During the pandemic, one study found that students' motivation to engage and continue to participate is related to emotional and social factors and online students may be de-motivated if the environment lacks interactive features (Al-Hashmi, 2021). Yet another study found that online students who are more motivated tend to perform better and report learning more (Stark, 2019; Francis, Wormington, & Hulleman, 2019). Another study noted that while business students appreciated the online education during the pandemic, their motivation decreased (Zizka & Probst, 2022). Our prior research revealed that our students perceived that they were less motivated online than FTF (Fish & Snodgrass, 2022).

Discipline. For students who are predisposed to being disciplined, prior research indicated that online learning can be effective (Tratnik et al., 2019). Students perceived online courses as requiring more self-discipline than FTF (Barak, Hussein-Farraq & Dori, 2016; Wen-Yu Lee & Tsai, 2011). More recent research found that online students felt that discipline was required to be successful (Paulik, 2025;Yan & Pourdavood, 2024). In our prior studies, students' perspectives on discipline indicated that more discipline was required online than FTF, and over our prior studies, students perceptions on more discipline being required online was increasing (Fish & Snodgrass, 2022).

Self-Directed. Self-direction addresses a student's perception of their willingness to teach and manage themselves in the learning environment. Prior to the pandemic, students argued that online allowed them to plan and manage their learning online more than FTF (Kirtman, 2009). Typically, online courses require more self-directed learning (Otter et al., 2013; Weldy, 2018), and for students who are predisposed to self-directed learning, online learning can be effective (Tratnik et al., 2019). More recent research indicates that prior student preferences for FTF changed toward 'hybrid' classes as students perceived online as having more learning support, being more flexible, and more self-directed (Bright & Vogler, 2024). Our prior research found significant changes in students' perspectives of self-directed over the years as students originally found online to be less self-directed (2012), which changed to requiring more self-direction just prior to the pandemic (2018), but during the pandemic, students did not perceive a difference in the learning environments (Fish & Snodgrass, 2022).

Independence. During the pandemic, students perceived that online required more independent learning than FTF (Dinu et al., 2022), and students perceived independence as being the control over their time management and personal learning, something they did not perceive in FTF classes (Kim, Bessey & Park, 2025). Students' perceptions of their own skills were positively related to how well they performed in online courses (Kaspar, Burtniak & Ruth, 2024). Students reported an improvement in their own independent skills due to being online (Dinu et al., 2022). Following the pandemic, a recent study indicated that students felt that online offers more independent learning than FTF (Bright & Vogler, 2024). For our population over the survey years, students have not perceived a significant change in their perspectives of online, as they indicated that online learning offers more independence (Fish & Snodgrass, 2022).

Schedule Flexibility. Schedule flexibility – particularly it's convenience- is a key reason that students perceive as a reason to take online classes (Dobbs, del Carmen & Wai-Lindberg, 2017; Mather & Sarkans, 2018; Nguyen, 2015; Platt Raile & Yu, 2014). Studies performed during the pandemic noted that students perceived positive benefits of online with respect to schedule flexibility's timing and location (Kumari et al., 2021; Almahasees et al, 2021; Tamtekin Aydi, 2025). A more recent study noted that while students' preferences on online versus FTF were mixed, they firmly believed online offered more schedule flexibility than FTF (Bright & Vogler, 2024). In our prior studies, business students also believed that online offered more schedule flexibility than FTF (Fish & Snodgrass, 2022).

Time Investment. With respect to students' perceptions of time investment, prior studies vary in their results as some studies indicate that online students felt they spent more time online (Dobbs et al., 2009; Lovern & Lovern, 2013; Perreault et al., 2008), and other studies indicated that FTF students felt they spent more time than online (Weldy,

2018). Online students often noted that they feel their skills set is better at time management than other students (Tratnik et al., 2019). During the pandemic, students reported that the online environment required time management skills in order to do well (Dinu et al., 2022). Other researchers found that student felt online was more flexible with respect to their time, but time investment in online was more demanding than FTF (Hachey, Wladis & Conway, 2023). Undergraduate students were not clear as to which environment they felt required more time (Thomas, Harb, Watters & Pothen, 2025). Graduate business students perceived online to be similar in time investment or require more time than FTF (Soliman, Salman, & Garnal-Eldin, 2022). In our studies over the years, initially students perceived online to require less time investment than online (Fish & Snodgrass, 2022). However, during the pandemic, students felt online required more time investment than FTF (Fish & Snodgrass, 2022). A recent study found that students perceived time differences between the two learning environments, but the relationship was not clear as students view 'time' differently (Thomas et al., 2025). Often, students perceive the fixed schedule of FTF as requiring more time investment while other students perceived online as requiring more time to study and prepare (Thomas et al., 2025).

Cost Investment. Prior to and during the pandemic, students perceived that online offers lower costs than FTF (Almahasees, Mohsen, and Amin, 2021; Smith et al., 2019). Several studies post-pandemic indicated that students continue to perceive lower costs associated with online learning (Meng, Yu, Lium, Pan, Pang, & Zhu, 2024; Quesada et al., 2023; Tlais et al., 2025). Students note the financial and logistical advantages to online or hybrid learning options (Quesada et al., 2023). Over the survey years for our study, students significantly changed their perception of cost investment as initially students perceived online as costing less than FTF, but by the pandemic, students were indifferent to the learning environments (Fish & Snodgrass, 2022).

Preference. Research prior to the pandemic found that most students do not perceive the two environments equally; however, as students experience online classes, they were more likely to consider taking another online course (Dobbs et al., 2009; Mather & Sarkans, 2018; Platt et al., 2014). Current research during and following the pandemic demonstrates that students' preferences for online or FTF education are context dependent and mixed (Tratnik et al., 2019; Zizka & Probst, 2022). A study of business students just prior to and post pandemic found that most business students preferred to be in the classroom but noted the benefits of online (Shurden, Shurden & DuPont, 2022). Recent research tends to show that hybrid learning models are currently emerging as the most appealing to today's students as they offer the 'best of both worlds' (Tlais et al., 2025). For our population, student preference to be in the opposite environment has changed from a preference to be FTF prior to the pandemic toward indifference during the pandemic (Fish & Snodgrass, 2022).

Happiness online. In our prior studies, student happiness between online and FTF education was 'mixed' (Fish & Snodgrass, 2022). A recent meta-analysis across 52 studies found that close to 60% of students prior to and following the pandemic were satisfied with online education, and pre-pandemic students were less satisfied with online education than their counterparts post pandemic (Xu & Xue, 2023). Another study found that students' overall happiness with online education was 'moderate' (Iamsen, Pinchinda, Jitsupa & Keesookpun, 2022). However, in another study conducted in South Korea, students in FTF classes were significantly more satisfied with their learning than online students (Han, Ryu, and Nadarajan, 2024). Another study reported that online students experienced isolation and loneliness and felt that the social interaction, which is tied to happiness, was higher in the FTF classrooms (Morer Quesada et al., 2023).

Appropriateness for Learning Environment. Students at the University of study have changed their viewpoint on the appropriateness of online learning (Fish & Snodgrass, 2022). In 2012, students at the University of study overwhelmingly favored FTF education; however, by 2018, students still favored FTF classes, but they were more accepting of online education (Fish & Snodgrass, 2022). During the pandemic, students were not as assured of the appropriateness of online. In another study conducted during the pandemic, researchers found that students felt online was appropriate for some tasks, such as lectures, but not for the full replacement of FTF education (Claudia Ionescu, M., & Stan, 2023). Other researchers echoed a similar result as their study revealed that students felt online education was appropriate for lectures, but not for labs, interaction-heavy discussions, and group work (Tamtekin Aydin, 2025). Additionally, the study went on to indicate that students felt hybrid education was the most appropriate. In a similar vein, another researcher found that students felt online learning should continue following the pandemic (Quesada et al., 2023).

Salient Conclusions for Our Study. Our literature review is not intended to be a comprehensive review of student individual factor research, but rather, an updating of the current status. The results highlight the ambiguity and 'mixed' results on several factors. Our intent in this study is to highlight the transition that has occurred from before

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the pandemic to during the pandemic to post pandemic perceptions for student individual factors. Due to the pandemic, most students experienced online education. Following the pandemic, where do students stand with respect to their perceptions of online versus FTF education? Specifically, our Research Question addressed within this paper is:

Research Question: Have online students' perspectives of online versus Face-to-Face education changed from before the pandemic (2012 and 2018) and during the pandemic (2021)?

H_{10}: Online business students' perspectives for individual factors of online education are *the same* as their perspectives of FTF education as before the pandemic (2012 and 2018) and during the pandemic (2021).

H_{11}: Online business students' perspectives for individual factors of online education are *not equal* to their perspectives of FTF education as before the pandemic (2012 and 2018) and during the pandemic (2021).

With the significant change to online education due to the pandemic, we are addressing the basic question "*have business students' perceptions of online versus FTF education changed?"*

Over the years, our research has demonstrated that due to technology changes as well as the pandemic, students' perceptions on most individual factors of online versus FTF education continue to change (Fish & Snodgrass, 2022). Our prior research noted that during the pandemic, students' perceptions on the individual factors of motivation, discipline, self-directed, time investment, cost investment, preference, happiness and appropriateness of online education had changed from before the pandemic (the original study (2012) and just prior to the pandemic (2018)). The question before us today is where are current students' perceptions now that students have had a chance to return to the FTF classroom.

As for technology changes over the years, originally, the University used 'Angel' as its learning management system but quickly transitioned to 'Desire2Learn'. Instructors design and deliver their courses completely on their own without designer support. Textbook publisher support may be available for online courses and can be used at the instructor's discretion. The University has been limited in purchasing advanced technology and software due to financial issues. Over the years, additional software capabilities, such as Microsoft PowerPoint video capabilities, Screen Pal and Zoom (during the pandemic), and recently, Panopto and Microsoft Teams, were made available to instructors. To assist with cheating issues online, the University provided instructors access to TurnItIn.com and recently, Copyleaks.

As noted in our previous research (Fish & Snodgrass, 2014, 2020, 2022), perceptual studies differ in the size (small, medium, large universities), audience (e.g., scientific versus social sciences, business versus non-business, and graduate versus undergraduate), and method of research (e.g. interview, survey). The context of the study may be an important factor to consider in interpretation of the survey results, and the results presented here represent another datapoint in a complex continuing situation.

METHOD

As part of a larger on-going study at an AACSB-accredited, Jesuit Catholic University in the northeast, in the spring of 2025 following the pandemic, business students completed an online Qualtrics-administered survey to assess their perceptions on online versus FTF education. The same survey was used in each survey year. The University Internal Review Board and Academic Vice President approved distribution of the survey. The survey was sent to students three times over March 2025 through a list server. The survey was originally sent in 2012, 2018 and 2021. The survey consisted of 3 major sections: demographic questions, Section A (online education perspective) or Section B (FTF education perspective). Demographic questions included questions on gender, age, class rank (undergraduate – freshmen, sophomore, junior, senior or graduate), undergraduate major or graduate program and potential concentration (graduate), online experience, self-reported level of technological understanding, whether the student was a transfer student, and if the student took an online course, the number of online courses taken. Then students who had completed at least one online course, completed Section A, while students who never took a complete semester online course completed Section B. Section A and B had corresponding questions on the perspectives noted; however, Section A statements are specific to "I found" while section B statements are "I perceive". Specific individual perspectives addressed include motivation, discipline, self-directed learning and independence, schedule flexibility, time and cost investment, preference, happiness, and appropriateness for the learning environment. Program factors studied include: academic difficulty, academic integrity (cheating), student-to-instructor interaction, student-to-instructor interaction, and program technologies. The student survey can be accessed at: http://www.cambriainstitute.com/journals/j.brcacadjb.2015.04.01.wa04.pdf. Each factor was rated by the respondent

using a five-point Likert scale: significant dislike, dislike, okay, like and significantly like. The last questions in Section A and B questioned the respondent on preference for the opposite environment (to the frame of reference of the questions), the individual's emotional happiness with the environment, and whether the individual felt online courses were appropriate for the University. In Section A, an open-ended question inquiring as to why they chose an online course completed the survey, while Section B ended with an open-ended question as to why the individual did not choose an online course.

Results

As shown in Table 1, fewer business students responded to the survey in 2025 than in prior studies and fewer students (42) completed survey Section A than in 2021 during the pandemic (146). A few business students (12) indicated that they had not taken an online course at the University, and therefore, they completed Section B. Our focus in this article is on the students completing the online perspective over the four survey years.

Table 1: Number of Students Online in 2012, 2018, 2021, 2025 Surveys.

# of Students	Online	FTF	Total
2012	44	67	111
2018	82	52	134
2021	146	12	158
2025	42	12	54
Total	314	143	457

While the output was discrete with the actual number of responses for each survey question for the online students for contextual understanding of the changes that exist over the 4 survey years, the average student individual responses are noted in Table 2 and shown in Figure 1. (The numerical counts for each question by study year can be found in the Appendix.) Given the survey setup, a student score of '3' was the point of indifference between FTF and online education. For online students, scores above 3 indicated that they felt online education was 'more' or 'harder' than FTF, while scores below 3 indicated that they felt online education was 'less' or 'easier' than FTF.

From the original study in 2012 through 2021, online students indicated that they were less motivated online than FTF; however, online students in 2025 were indifferent. As for discipline, previously online students indicated that online education required more discipline, particularly increasing through the pandemic (2021). Their current views, while indicating that online requires more discipline, are on average less than during the pandemic. Online students' perceptions of self-directed have changed over the survey years. In the original study, they felt that online was 'less self-directed', but current students appear to feel that they are more self-directed online than FTF. With respect to independence, online students have always favoured online education; however, while their perception of independence dropped during the pandemic, current students perceive a stronger independence online than in the past. Online students have always perceived schedule flexibility to be more than in the FTF environment. Oddly, their viewpoint on this factor also dropped during the pandemic, but today's students perceive schedule flexibility to be much more in the online environment than FTF. While online students perceived the time investment to be more online than FTF, today's students are indifferent to the two environments. With respect to cost investment, while students were indifferent to cost investment during the pandemic, today's online students perceptions are similar to the original study (2012) as students perceive the costs to be less online than FTF. Over the four surveys, online students' perception of whether they would prefer to be in a FTF environment have changed from 'yes' to 'indifference' toward not wanting to be in the FTF environment. Additionally, online students' perceptions of their happiness online, while dropping during the pandemic, continue to increase. As for the appropriateness of online education, online students' perceptions of the appropriateness of online education, while being 'indifferent' during the pandemic, have reverted to indicating that online education is appropriate.

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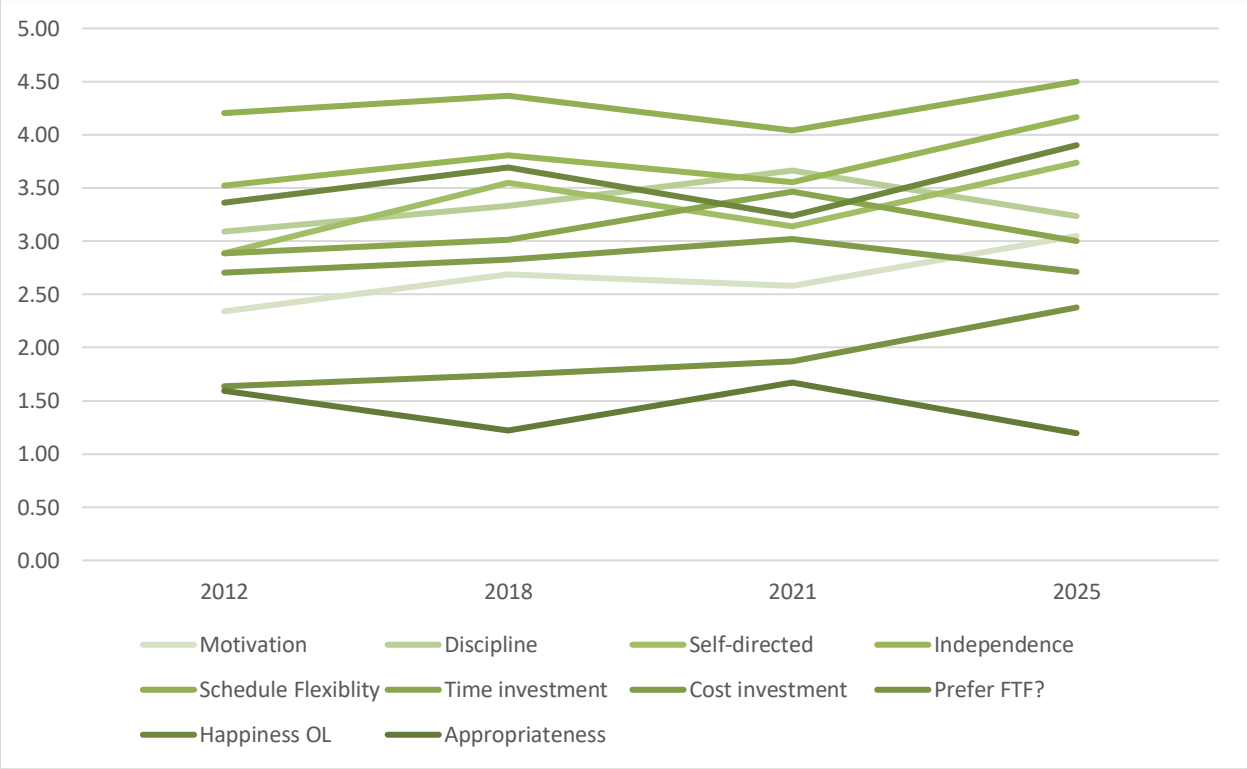
Table 2: Online Student Average Responses –2012, 2018, 2021 & 2025

Factor	Online Average Response			
	2012	2018	2021	2025
Motivation	2.34	2.69	2.58	3.05
Discipline	3.09	3.33	3.66	3.24
Self-directed	2.89	3.55	3.14	3.74
Independence	3.52	3.80	3.55	4.17
Schedule flexibility	4.20	4.37	4.04	4.50
Time investment	2.89	3.01	3.47	3.00
Cost investment	2.70	2.83	3.02	2.71
Preference opposite	1.64	1.74	1.87	2.38
Happiness with online environment	3.36	3.70	3.24	3.90
Appropriateness	1.59	1.22	1.67	1.20

Figure 1. Student Perceptions OL Individual Factors



This study's intent was to compare students' perspectives for the program factors over the years however, it was important to test whether the populations were indifferent to the two learning environments. Indifference to the two environments was indicated by the respondents with a response of '3' (the scale midpoint) on any factor. As shown in Table 3 (two-tailed t-tests for a hypothesized difference to the midpoint (3)), all of the individual factors differed significantly from the 'indifference' point except for discipline (p=.61), and self-directed (p=.48) in the original study (2012); time investment (p=.8937) in the study just prior to the pandemic (2018); and self-directed (p=.2399), cost investment (p=.7729) and preference for the opposite environment (p=.0712) during the pandemic (2021). Current online business students' perspectives (2025) of the two learning environments statistically differed from the midpoint for the all of the individual factors except motivation (p=.3720), discipline (p=.1423), time investment (p=1.000), cost investment (p=.0568) and preference for the opposite environment (p=.866).

Table 3. Two-Tail T-Test Significance from Hypothesized Mean Difference from Midpoint (3) Online versus FTF

Factor	2012	2018	2021	2025
Motivation	.0000	0.0048	0.0000	0.3720
Discipline	.6100	0.0040	0.0000	0.1423
Self-directed	.4800	0.0000	0.2399	0.0001
Independence	.0032	0.0000	0.0000	0.0000
Schedule flexibility	.0000	0.0000	0.0000	0.0000
Time investment	.4000	0.8937	0.0000	1.0000
Cost investment	.0034	0.0259	0.7729	0.0568
Preference opposite	.0010	0.0022	0.0712	0.8644
Happiness with online environment	.0250	0.0000	0.0330	0.0000
Appropriateness	.0010	0.0000	0.0000	0.0000

* $p \leq .05$

As the survey data was discrete, Chi-Square analysis using the contingency coefficient as the nominal value was performed for the online students' individual factors. In this study, we were interested in analyzing changes between the years on the individual factors. As shown in Table 4, online business student perceptions significantly changed across the survey years for the individual factors of motivation (p=.022), discipline (p=.006), self-directed (p=.002), time investment (p <.001), cost investment (p=.031), preference for the opposite environment (FTF; p=.002), happiness with the environment (p=.013) and the appropriateness of online (p<.001). Their perceptions did not change for independence (p=.141) and schedule flexibility (p=.079).

Table 4: Online Student Perspectives by Survey Year (2012, 2018, 2021 & 2025)

Metric	Pearson Chi-Square Value	Df	Asymptotic Significance (2-sided)	Pearson's R	Spearman Correlation
Motivation	23.715	12	.022*	.092	.075
Discipline	27.681	12	.006*	.104	.094
Self-directed	31.756	12	.002*	.094	.089
Independence	17.240	12	.141	.082	.092
Schedule flexibility	19.394	12	.079	.000	.032
Time investment	40.378	12	<.001*	.129	.127
Cost investment	22.660	12	.031*	.059	.065
Preference opposite?	20.733	6	.002*	.138	.121
Happiness with environment	25.426	12	.013*	.023	.030
Appropriateness of Online	27.667	6	<.001*	-.001	.021

* $p \leq .05$

DISCUSSION

The focus of this long-term study was to analyze the changes in business students' perceptions on several individual factors over the years. Initial research (Fish & Snodgrass, 2014) indicated that as students took more online courses, their perception of online education would change. However, at this University, while technology changed and the number of available online courses increases, prior to the pandemic, there were very few changes in the students' perspectives (Fish & Snodgrass, 2020). Survey results one year into the pandemic found that online business student perspectives changed for the individual factors of motivation, discipline, self-directed, time investment, cost investment, preference, happiness and appropriateness (Fish & Snodgrass, 2022). The purpose of our current study was to continue to analyze students' perceptions of online education now that they pandemic is considered to be 'over'. The pandemic forced most students to experience online education. Now that students have a choice to take online courses, have their perceptions of online education changed? As demonstrated in this study, online students' perceptions have changed over the years with respect to their motivation, discipline, self-directed, time investment,

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cost investment, preference for FTF education, happiness with online education, and the appropriateness of online education. Their perceptions of independence and schedule flexibility did not significantly change over the years.

As discussed above, technological capabilities to deliver and receive courses have changed over the years. Technology may influence how students perceive the online versus FTF learning experience. For financial reasons, the University is limited in its ability to provide instructors and students with more advanced technologies. This limitation may negatively impact upon students' perceptions of online education as technology may be difficult to use, may fail or limit access to materials, other students and instructors. Other Universities may have access to more advanced systems. As we noted above, the context of the study – and its associated technological capabilities may be an important factor to consider in evaluating the results.

Student Motivation, Discipline and Self-directed Learning. The results demonstrate a significant change in online student perceptions over the years for the individual factors of motivation, discipline and self-directed learning. While our past students indicated that they were less motivated online (Fish & Snodgrass, 2022), our current business students are indifferent to the two environments. These results differ than other recent research studies that indicate students were more motivated in FTF classes (Quesada et al., 2023; Yan & Pourdavood, 2024). With respect to discipline, current students are 'indifferent' to the two environments, which is a shift from during the pandemic where they felt online required more discipline. This result supports other studies that indicate that students perceive online education to require more discipline (Barak et al, 2016; Tratnik et al. 2019). Online students in our study felt that online education required significantly more self-directed learning than FTF, which is a change from during the pandemic when students were indifferent to the environment. This result is similar to other recent research results that found that students perceive online as being more self-directed (Bright & Vogler, 2024).

Independence. Online business students have always perceived online education as offering more independence and a significant shift in this perspective for this population has not occurred. This result supports other similar research where students perceived online as offering more independence than FTF (Bright & Vogler, 2024) Dinu et al., 2022; Kim et al., 2025).

Schedule Flexibility. Online students often note that the schedule flexibility is a key reason why they choose to take an online course (Almahasees et al, 2021; Bright & Vogler, 2022; Kumari et al., 2021; Tamtekin Aydi, 2025). These results continue to support this student perception as the current online students perceive online education as offering significantly more schedule flexibility than FTF classes.

Time and Cost Investment. For this population, online students' perceptions of time and cost investment have changed over the thirteen years of study. While online students perceived that online education required more time investment during the pandemic, today's online students are indifferent to the two environments, which is a significant change in perspective since the pandemic. This is in contrast to another study where students indicated that online was more demanding of their time than FTF (Hackey Wladis & Conway, 2023). These two studies support the conclusion of another study that indicated that the relationship was not clear as students view time differently with FTF requiring a fixed schedule and online requiring more time to study and prepare (Thomas et al., 2025). As for cost investment, during the pandemic online students were indifferent to the two environments, but today's online students perceive online as requiring less cost investment than FTF. This post pandemic perception supports other studies where students perceived online courses as offering lower costs than FTF (Meng, Yu, Lium, Pan, Pang, & Zhu, 2024; Quesada et al., 2023; Tlais et al., 2025).

Preference for the opposite environment (FTF). Research studies prior to the pandemic found that students overwhelmingly favored the FTF environment (Fish & Snodgrass, 2022; Tratnik et al.., 2019). In our original study (Fish & Snodgrass, 2014), students overwhelmingly preferred to be in the FTF environment. Just before the pandemic (2018), students still preferred to be in the FTF classroom. The pandemic forced many students into the online environment, and during the pandemic, students still favored returning to the FTF classroom (Fish & Snodgrass, 2022). With respect to their preference for the opposite environment (FTF), current online students do not wish to return to the FTF classroom. This result supports other research that indicates hybrid learning models are emerging as the most appealing to today's students (Tlais et al, 2025) as well as another study where business students indicated that there are benefits to online education (Shurden, Shurden & DuPont, 2022).

Happiness online. Online students during the pandemic were not happy with the online environment (Fish & Snodgrass, 2022). Perhaps this was due to students being forced online instead of choosing it for themselves or it may

have been due to the 'loneliness' of the pandemic. Whatever the reason, today's online students are very happy with the online environment, which represents a significant change from the past for this University. Our results are similar to other studies where students were happy with the online environment (Xu & Xue, 2023), but contrasts other studies where FTF students were 'moderate' (Iamsen, Pinchinda, Jitsupa & Keesookpun, 2022) or more satisfied with their learning environment than online students (Han, Ryu and Nadarajan, 2024; Morer Quesada et al., 2022).

Appropriateness of online education. Over the four survey years spanning more than a decade, online business students' perceptions of the appropriateness of online education significantly changed at this University. While students during the pandemic were unsure of its appropriateness, today's students support the appropriateness of online education. One study indicated that students felt online education should continue after the pandemic (Quesada et al., 2023). Other researchers have found similar results as students felt online was appropriate for some tasks (Claudia Ionescu & Stan, 2023; Tamtekin Aydin, 2025).

CONCLUSION

In general, online students' perceptions are changing from over a decade ago on many individual factors. Obviously, the pandemic forced the movement to online education. In our post-pandemic world, students have the opportunity to experience both online and FTF education. Online business students surveyed in our studies have shifted their perceptions on the individual factors of motivation, discipline, self-directed, time investment, cost investment, preference for FTF education, happiness with online education, and the appropriateness of online education. However, their perceptions of independence and schedule flexibility did not significantly change over the years. It appears that today's students are more amenable to online education than past students. While the results of this study indicate similarities in student perceptions on some individual factors to other studies, there are also differences between the research results. Our results represent one data point in a changing educational environment. As noted in our prior studies, the context of the study may be a critical factor to consider in understanding student preferences.

Online business students from this University are more amenable to online education than in the past. This study occurred at a teaching institution that prior to the pandemic mainly delivered education through the FTF classroom. The pandemic forced instructors and students to experience online education. At the institution, instructors are solely responsible for course design as there are no instructional designers. Going forward, instructors will need to understand the current student expectations and perceptions in order to meet the current student needs. As a starting point, course syllabi will need to clearly articulate expectations. Instructors will need to have a clearer idea of what components students are receptive of in the online environment. As education continues to add online instruction – either as entire courses or as components, future research should continue to study student and instructor perceptions with respect to individual factors for complete online and hybrid education. Administration should financially and strategically support technological changes as well as instructor curriculum and training programs to support these changes.

Limitation. A dramatic decrease in responses from prior to (2018) and during the pandemic (2021) to after the pandemic (2025) occurred. Perhaps, prior to the pandemic, more students had experienced online courses than the original study due to a growth in online education at the University. As for during the pandemic, most students were 'forced' to take at least one class online due to the nature of the pandemic. As for the significant decrease in respondents, it may be attributed to 'survey' fatigue as well as fewer students at the University.

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Appendix: Count by Year

I am _____ motivated in online courses than face-to-face course.						
	1	2	3	4	5	Total
2012	10	11	21	2	0	44
2018	10	22	33	15	1	81
2021	35	34	45	21	11	146
2025	5	9	16	11	1	42
Total	60	76	115	49	13	313

I find the discipline required in taking an online course to be _____ than in face-to-face courses						
	1	2	3	4	5	Total
2012	5	9	10	17	3	44
2018	4	11	30	28	9	82
2021	4	16	44	43	39	146
2025	2	9	11	17	3	42
Total	15	45	95	105	54	314

I enjoy the self-directed online environment _____ than the interaction in face-to-face environment.						
	1	2	3	4	5	Total
2012	4	12	16	9	3	44
2018	4	10	22	29	17	82
2021	26	24	32	32	32	146
2025	1	6	7	17	11	42
Total	35	52	77	87	63	314

I enjoy the independence associated with the online courses _____ than the interaction in face-to-face courses.						
	1	2	3	4	5	Total
2012	2	7	9	18	8	44
2018	3	6	16	36	21	82
2021	13	17	31	46	39	146
2025	1	1	5	18	17	42
Total	19	31	61	118	85	314

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I enjoy the schedule flexibility associated with online courses _____ than the interaction in face-to-face courses.						
	1	2	3	4	5	Total
2012	0	3	5	16	20	44
2018	1	0	8	32	41	42
2021	10	6	17	48	65	146
2025	1	1	0	14	26	42
Total	12	10	30	130	152	314

I find online courses require _____ time investment in the course than face-to-face courses.						
	1	2	3	4	5	Total
2012	2	14	15	13	0	44
2018	4	12	48	15	3	82
2021	6	18	50	46	26	146
2025	1	10	21	8	2	42
Total	13	34	134	82	31	314

I find online courses total costs are _____ than face-to-face courses.						
	1	2	3	4	5	Total
2012	1	14	26	3	0	44
2018	3	18	51	10	0	82
2021	8	18	93	17	10	146
2025	5	9	23	3	2	42
Total	17	59	193	33	12	314

Would you prefer to take a class in a traditional face-to-face environment?				
	1 (Yes)	2 (Undecided)	3 (No)	Total
2012	21	18	5	44
2018	35	33	14	82
2021	65	35	46	146
2025	16	7	17	40
Total	137	93	82	312

I am _____ with the online course environment for learning.						
	1	2	3	4	5	Total
2012	3	3	19	13	6	44
2018	3	6	24	29	20	82
2021	22	20	38	35	32	147
2025	1	3	8	16	13	41
Total	29	32	89	93	71	314

Would you prefer to take a class in a traditional face-to-face environment?				
	1 (Yes)	2 (Undecided)	3 (No)	Total
2012	26	10	8	44
2018	67	12	3	82
2021	81	32	33	146
2025	34	6	1	41
Total	208	60	45	313

Virtual Reality 360° Video as an Instructional Tool in Business Education: Student Perceptions from a Classroom-Based Study

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ABSTRACT

As business education increasingly emphasizes experiential and applied learning, instructors are exploring immersive technologies that may enhance student engagement and contextual understanding. This study examines student perceptions of 360-degree video as an instructional tool within a classroom-based undergraduate business course. A survey was administered to students enrolled in a course integrating 360-degree video content to assess technology comfort, engagement, and perceived instructional value. Of 28 enrolled students, 20 completed the survey (71% response rate). Results indicated high levels of comfort with multimedia technology and strong agreement that 360-degree video enhanced engagement and supported learning of course concepts. A qualitative follow-up interview provided contextual insight into survey findings, highlighting the role of spatial context, learner control, and instructional guidance. While limited to self-reported perceptions within a single course, the findings suggest that students view 360-degree video as a promising and scalable instructional innovation for business education, particularly for enhancing student engagement and perceived contextual understanding. However, because this study relies on student perceptions rather than direct measures of learning outcomes, further research is needed to determine the impact of 360-degree video on actual learning gains.

Keywords: experiential learning, immersive technology, 360-degree video, business education, instructional innovation

INTRODUCTION

Recent advances in immersive media technologies have introduced new possibilities for experiential learning within traditional classroom environments. Two prominent but distinct approaches are virtual reality (VR) and 360-degree video. VR refers to fully interactive, computer-generated environments that immerse users and allow them to navigate and manipulate digital objects, typically requiring specialized headsets and controllers. In contrast, 360-degree video presents real-world scenes captured in all directions, enabling viewers to look around from a fixed position but not interact with or alter the environment. Importantly, 360-degree video is not a subset of VR but a separate category of immersive media, offering unique affordances and limitations for instructional use. Its accessibility via standard web-based platforms may increase scalability for instructors and institutions.

In prior work, the authors examined the use of 360-degree camera technology in a study-abroad context, demonstrating that immersive video could approximate aspects of experiential learning for business students when physical travel was limited (Kruger et al., 2024). That study highlighted the potential of immersive media to support contextual understanding and engagement in global business education. However, questions remain regarding whether similar benefits extend to traditional course settings where immersive content supplements standard instructional materials.

The present study extends this line of inquiry by examining student perceptions of 360-degree video used within a domestic, classroom-based business course. Rather than focusing on international immersion, this research explores whether students perceive immersive video as engaging, instructionally valuable, and supportive of learning when integrated into regular course content. The study addresses the following research questions:

1. How comfortable are students with multimedia technology for viewing and creating instructional content?
2. How do students perceive the impact of 360-degree video in supporting engagement?
3. How do students perceive the instructional value of 360-degree video in supporting their understanding of course concepts?

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PREVIOUS RESEARCH

Experiential Learning in Business Education

Experiential learning has long been recognized as a cornerstone of effective business education, particularly when instructional strategies allow students to connect theory to authentic contexts (Kolb, 1984). Approaches such as simulations, case-based instruction, site visits, and study-abroad programs have been shown to support engagement and applied learning (Gentry, 1990; McCarthy & McCarthy, 2006). However, these practices often involve logistical and financial constraints that limit their scalability.

Advances in immersive technologies—including virtual reality (VR) and 360-degree video—have introduced new possibilities for experiential learning within traditional classroom environments. Research suggests that immersive media can enhance engagement, sense of presence, and situational understanding, though learning outcomes remain highly dependent on instructional design (Radianti et al., 2020; Makransky & Petersen, 2019). Poorly designed immersive experiences may increase cognitive load or distract from learning objectives (Parong & Mayer, 2018).

Although both VR and 360-degree video are forms of immersive media, they differ significantly in user experience and instructional potential. VR offers fully interactive, computer-generated environments that allow users to navigate and manipulate digital spaces, whereas 360-degree video provides an immersive viewing experience of real-world environments from a fixed perspective. This distinction is particularly important for educators considering which technology best aligns with their learning objectives, instructional context, and available resources (Huang et al., 2021). Prior studies report generally positive student perceptions related to engagement and contextual understanding, particularly when immersive video is purposefully integrated into course design (Makransky et al., 2019).

Research on immersive media in business education remains limited. Existing studies have focused primarily on high-impact or international learning contexts, such as study-abroad programs (Kruger et al., 2024). Less is known about how students perceive 360-degree video when used as a regular instructional supplement within domestic, classroom-based business courses. Addressing this gap is essential for evaluating the feasibility and instructional value of immersive video as a scalable teaching tool.

Immersive Technologies in Higher Education

Advances in immersive technologies have generated growing interest in their potential to support experiential learning in higher education. Virtual reality (VR) and immersive media have been associated with increased student engagement, sense of presence, and motivation across a range of disciplines (Aufenanger et al., 2025; Radianti et al., 2020). Systematic reviews and meta-analyses suggest that immersive environments can enhance learner engagement and situational understanding, although evidence of direct learning gains remains mixed and highly dependent on instructional design (Makransky & Petersen, 2019). Most recently, Aufenanger et al. (2025) conducted research which found benefits of using virtual reality in learning, such as reporting high motivation and positive emotional responses-especially for experiences involving interactivity, yet there were reported challenges like motion sickness and some technical issues.

Researchers have cautioned that immersive technology alone does not guarantee improved learning outcomes and may introduce challenges related to cognitive load or usability if poorly designed (Parong & Mayer, 2018). While VR learning experiences can significantly enhance motivation and engagement, careful consideration must depend on alignment with pedagogical goals, design quality, and user experiences for effectiveness (Aufenanger et al., 2025). These findings highlight the importance of examining not only learning outcomes, but also student perceptions and experiences when evaluating immersive instructional tools.

360-Degree Video as a Scalable Immersive Tool

Within the broader category of immersive technologies, 360-degree video has emerged as a more accessible alternative to fully immersive VR systems. Unlike headset-based VR, 360-degree video can be viewed through standard web browsers and mobile devices, reducing equipment requirements and increasing scalability (Huang et al., 2021). Prior research suggests that 360-degree video can provide many of the engagement and contextual benefits associated with

immersive environments while minimizing technical barriers, particularly when intentionally integrated into instructional design (Makransky et al., 2019). However, much of the existing literature has focused on discipline-specific applications or highly immersive contexts, leaving questions about how students perceive 360-degree video when used as a regular instructional supplement in traditional classroom settings.

Student Engagement and Perception as Indicators of Instructional Value

Student engagement has been widely recognized as a critical factor in effective learning and persistence in higher education (Fredricks et al., 2004; Kuh, 2008). While engagement alone does not equate to learning, student perceptions of engagement and instructional value are commonly used indicators in studies of instructional innovation, particularly in early-stage or exploratory research (Richardson et al., 2012). Examining 360-degree video in educational contexts can result in positive student perceptions related to engagement, realism, and contextual understanding, particularly when videos are integrated purposefully into course design (Averbeck & Utesch, 2025; Kavanagh et al., 2025; Rosendahl & Wagner, 2024).

In the context of emerging instructional technologies, perception-based measures provide critical insight into how students experience new tools and whether they view them as supportive of learning (Davis, 1989; Venkatesh et al., 2003). Such measures are especially relevant in classroom-based studies where the goal is to evaluate feasibility, acceptance, and perceived value prior to broader implementation or outcome-focused research (Kirkpatrick & Kirkpatrick, 2006; Liaw et al., 2007).

Immersive Media in Business Education

Research on immersive media in business education remains limited but growing. Existing studies have demonstrated the potential of immersive technologies to support applied learning in areas such as global business, management, and organizational behavior. In prior work, Kruger et al. (2024) examined the use of 360-degree camera technology in a study-abroad context, finding that immersive video supported student engagement and contextual understanding when physical travel was constrained.

While these findings suggest promise for immersive media in high-impact learning experiences, less is known about how students perceive 360-degree video when used within domestic, classroom-based business courses. Addressing this gap is essential for understanding whether immersive video can serve as a scalable instructional tool beyond specialized experiential settings.

Purpose of the Current Study

The present study examines student perceptions of 360-degree video integrated into a traditional business course. By focusing on technology comfort, engagement, and perceived instructional value, this study seeks to extend existing literature by exploring how immersive video is experienced in a standard classroom context. The findings contribute to ongoing conversations about the role of immersive media as a practical and scalable innovation in business education.

RESEARCH DESIGN

Participants

Participants were students enrolled in an undergraduate business course at a private Midwestern university. At the time of data collection, 28 students were enrolled in the course. Participation in the study was voluntary, and no incentives were offered. Researchers encouraged participation through verbal reminders and two email communications. A total of 20 students completed the survey, resulting in a response rate of 71%. After the survey, participants were encouraged to participate in a semi-structured small group interview to further share their experiences.

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Instructional Context

The course incorporated 360-degree video content recorded by the instructor during site visits to locations across the United States, including recreational sport environments, collegiate facilities, regional speedway expansions, and rural settings. These videos supplemented traditional instructional materials and were intended to provide contextualized, real-world perspectives aligned with course topics. Students accessed the videos through standard web-based platforms; no specialized virtual reality headsets were required. Some videos included instructor narration and guidance, whereas others were intentionally unguided.

Instrument

Data were collected using a survey consisting of Likert-scale items measuring student comfort with multimedia technology, perceived engagement, and perceived instructional value of the 360-degree video content. Items asked students to indicate their level of agreement with statements related to viewing and creating multimedia content, engagement with immersive video, and perceived learning support.

Data Analysis

Survey responses were analyzed descriptively to identify overall trends and patterns in student perceptions. Given the exploratory nature of the study and the bounded course context, analysis focused on frequencies and overall distributions rather than inferential statistics.

Qualitative Follow-Up and Thematic Analysis

To supplement survey findings, a qualitative follow-up was conducted using a semi-structured small-group interview with three volunteer participants from the course. We offered a $25 gift card to motivate participation. The purpose of this follow-up was to provide illustrative context and deeper insight into survey responses rather than to achieve thematic saturation. The session was audio-recorded and reviewed to identify points of convergence with survey findings. Interview data were reviewed iteratively to identify recurring patterns aligned with the survey constructs.

FINDINGS

Technology Comfort

Survey results indicate high levels of student comfort with multimedia technology, including both viewing and creating video-based content. These findings were reinforced in the qualitative follow-up, where participants consistently described the technological experience as straightforward and low effort.

Students emphasized that accessing 360-degree videos through standard web-based platforms minimized technical barriers and cognitive load. Several participants contrasted this approach with headset-based VR systems, noting that while headsets may offer deeper immersion, they introduce additional challenges related to hardware setup, charging, and connectivity. When accessed through familiar platforms such as YouTube, the immersive videos were perceived as easy to use and largely transparent to the learning task. Collectively, these findings suggest that 360-degree video, when implemented without specialized equipment, does not present a significant usability barrier for undergraduate business students.

Engagement

Survey responses demonstrated strong agreement that 360-degree video increased engagement relative to traditional instructional materials. Focus group participants provided consistent explanations for this pattern.

Students described engagement as stemming from the ability to actively control their viewing perspective. The capacity to explore environments, shift focus, and examine contextual details distinguished immersive video from flat video formats. This interactivity fostered a sense of agency, shifting students from passive viewers toward more active

participation in the learning experience. Participants frequently described traditional online video as easier to disengage from, whereas immersive video demanded greater attentional investment and sustained focus.

Perceived Instructional Value

Beyond engagement, students perceived 360-degree video as instructionally valuable and supportive of their understanding of course concepts. Qualitative findings clarified that this value was closely tied to spatial context.

Participants emphasized that immersive video enabled them to visualize how abstract concepts manifested in real-world environments. Examples included identifying sponsorship and branding opportunities at a racetrack, understanding congestion and movement patterns in event-based settings, and observing spatial relationships that would be difficult to convey through text or static images alone. Students described the videos as helping them "see where things actually apply," suggesting that immersive video functioned as a bridge between theoretical instruction and applied learning.

Sense of Presence and Emotional Engagement

Although the survey focused primarily on engagement and instructional value, qualitative data revealed a recurring theme related to sense of presence. Students frequently used immersive language—such as describing experiences as "going there" rather than "watching a video"—to characterize their interactions with the content. This linguistic framing suggests that the 360-degree format supported a sense of psychological presence within the environment, allowing students to perceive the experience as participatory rather than observational. Rather than viewing the videos as static instructional media, participants described feeling positioned within the setting, which appeared to shift their attentional orientation from passive viewing toward active exploration.

Participants also reported heightened awareness of ambient sounds, spatial relationships, and contextual details that might otherwise be overlooked in traditional video formats. These environmental cues contributed to perceptions of realism and encouraged closer observation of elements relevant to course concepts, such as layout, movement, and situational dynamics. Several students noted that this increased sensory awareness helped sustain focus and reduced the tendency to disengage, which contrasted with their typical experiences watching conventional instructional video.

While emotional responses varied across individuals, students consistently described the immersive videos as more vivid and memorable than traditional video formats. The combination of perceived realism and active exploration appeared to support stronger cognitive impressions of the learning experience, reinforcing survey findings related to engagement and curiosity. Collectively, these observations suggest that perceived presence may function as an important mechanism through which 360-degree video enhances learner attention and perceived instructional value.

Role of Instructional Design and Guidance

A key qualitative finding was the importance of instructional guidance. Participants consistently expressed a preference for narrated or instructor-guided 360-degree videos, particularly in unfamiliar environments. Narration was viewed as essential for directing attention, clarifying purpose, and connecting observed details to course concepts.

In contrast, unguided exploratory videos were described as less instructionally effective and, in some cases, comparable to traditional video viewing. These findings suggest that the instructional value of 360-degree video is contingent on purposeful integration and alignment with learning objectives rather than the technology alone.

Table 1 summarizes instructor-oriented best practices that emerged from qualitative findings and relevant literature regarding the effective integration of 360-degree video in classroom settings.

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Table 1. Best Practices for the Effective Integration of Instructor-Guided 360° Video

Focus Area	Best Practice Strategy	Evidence from Research & Interviews
Instructional Guidance	**Provide active narration and clear explanations.**	Students preferred narrated videos to direct attention and connect observations to course concepts. One student specifically noted that "more explanation in the video would help".
Application of Theory	**Use 360° video to bridge abstract concepts with real-world settings.**	Students used the technology to visualize "where things actually apply," such as identifying sponsorship placement at a speedway.
Learner Agency	**Encourage active exploration and "clicking around."**	Engagement is driven by the student's ability to control the perspective, zoom in, and see "behind the camera". This shifts the student from a passive viewer to an active participant.
Frequency & Duration	**Balance usage to avoid "novelty fatigue."**	Students suggested that using the tool for every assignment might make it "get a little old," but using it only once or twice is not "impactful" enough.
Platform Selection	**Prioritize web-based accessibility (e.g., YouTube) over VR headsets.**	Web-based platforms minimize technical barriers and "cognitive load" compared to the hardware challenges of headsets.
Environmental Context	**Leverage spatial and sensory cues (sound and depth).**	Students reported a heightened sense of presence—feeling like they were "going there"—by hearing environmental sounds and observing spatial relationships.
Scaffolding	**Set clear expectations and purpose for each video.**	To avoid students asking, "what's the point of that," instructors should provide structured integration and clear pedagogical goals for each immersive experience.

Equity, Accessibility, and Appropriate Use

Finally, qualitative findings highlighted considerations related to equity and accessibility. While most students reported comfort with the technology, participants acknowledged that learners with lower technical confidence, older students, or individuals with visual impairments might face challenges without appropriate scaffolding.

Students emphasized the importance of narration, clear expectations, and structured integration to ensure that immersive video supports learning for all students. Additionally, participants cautioned against overuse, noting that immersive video is most effective when employed selectively and purposefully rather than as a default instructional format.

Figure 1. Response Distribution by Survey Item

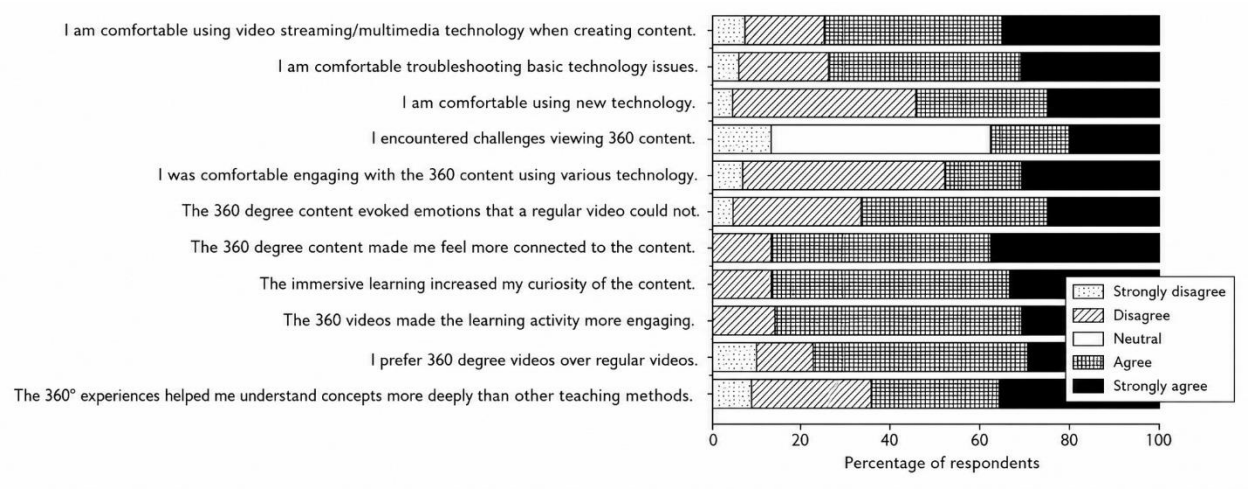

Table 2 presents a joint display integrating key quantitative survey patterns with corresponding qualitative themes, illustrating points of convergence between the two data sources.

Table 2. Joint Display of Quantitative Survey Results and Qualitative Themes

Survey Construct	Quantitative Survey Pattern	Qualitative Theme	Illustrative Qualitative Insight
Technology Comfort	Majority of respondents agreed or strongly agreed they were comfortable viewing and creating multimedia content	Low cognitive and technical load	Students described accessing 360-degree videos via web platforms as "easy," "simple," and requiring minimal effort, particularly when compared to headset-based VR systems.
Engagement	Strong agreement that 360-degree video increased engagement compared to traditional instructional materials	Active exploration and learner control	Participants emphasized the ability to control perspective, explore environments, and focus on contextual details as key drivers of sustained attention and engagement.
Perceived Instructional Value	Majority agreement that 360-degree video supported understanding of course concepts	Spatial context bridges theory and application	Students reported that immersive video helped them visualize how abstract concepts appeared in real-world settings, supporting applied understanding.
Engagement and Curiosity	High levels of agreement related to interest and attentiveness	Sense of presence and realism	Participants frequently described the experience using immersive language (e.g., "going there"), indicating a heightened sense of psychological presence.
Instructional Effectiveness	Positive overall ratings with some variation	Importance of instructional guidance	Students consistently preferred narrated or instructor-guided videos, noting that guidance helped direct attention and connect observations to course concepts.
Usability and Equity	Generally positive comfort ratings with some neutral responses	Need for scaffolding and intentional use	Participants noted that narration, clear expectations, and selective use were important for accessibility and to avoid overwhelming some learners.

Note. Qualitative findings are illustrative and intended to contextualize survey trends rather than indicate thematic saturation.

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DISCUSSION

The findings suggest that students perceive 360-degree video as a scalable and accessible tool for supporting experiential learning in business education, aligning with AACSB's emphasis on applied and context-rich instruction. By enabling virtual site visits and immersive case studies, 360-degree video may allow instructors to integrate real-world business environments into the curriculum without the logistical and financial barriers associated with physical travel. Students in this study described immersive video as engaging and contextually meaningful, particularly when paired with instructor guidance and purposeful integration into course content. The technology also offers opportunities for instructional design innovation, such as embedding guided narration and reflective prompts to encourage deeper engagement and contextual understanding. For curriculum developers, 360-degree video may be strategically aligned with program-level learning outcomes and experiential learning goals. However, successful adoption at scale will likely require faculty development, institutional support, and clear guidelines for effective implementation. Future research should continue exploring best practices for faculty training, cross-disciplinary applications, and the relationship between 360-degree video and measurable learning outcomes.

Importantly, qualitative findings suggest that engagement was driven not by novelty alone, but by learner control, spatial realism, and a heightened sense of presence. These results align with prior research indicating that immersive media can support attentional focus and situational understanding when learners are afforded agency within the environment. This finding reinforces the importance of instructional design in immersive learning contexts, where purposeful integration and pedagogical framing may matter more than technological sophistication alone.

The study also reinforces cautions in the immersive learning literature: technology alone does not ensure instructional effectiveness. Students consistently emphasized the importance of instructor narration, purposeful framing, and alignment with learning objectives. Unguided immersion, while potentially interesting, was perceived as less effective for supporting conceptual understanding.

From a feasibility perspective, students' high levels of technology comfort, combined with a preference for web-based access over headset-based VR, suggest that 360-degree video is a scalable instructional option. By avoiding specialized hardware, instructors can leverage immersive affordances while minimizing cognitive and technical barriers. Importantly, students in this study engaged with 360-degree video rather than fully immersive virtual reality, suggesting that many experiential benefits may be achievable without the technical complexity, cost, or equipment demands associated with headset-based VR systems.

Common implementation barriers include limited departmental budgets for purchasing and maintaining 360° video equipment, as well as the ongoing costs of software licenses and technical support. Faculty may face challenges integrating 360° video into institutional learning management systems, as not all platforms natively support interactive video playback or analytics. To address these barriers, institutions should allocate dedicated funding for immersive media initiatives, establish centralized technical support (e.g., media labs or IT help desks), and provide clear, step-by-step guidelines for uploading and embedding 360° video content within the LMS. Collaboration with instructional technology specialists can further streamline the integration process and ensure compliance with accessibility standards.

Implications for Business Education

For business educators seeking to enhance experiential learning, 360-degree video represents a practical and increasingly accessible instructional innovation. The technology allows instructors to provide immersive, contextualized experiences without the logistical constraints associated with travel or physical site visits. As business programs continue to emphasize applied learning and student engagement, immersive video may serve as a valuable supplement to traditional instructional strategies by helping learners connect course concepts to authentic environments.

Importantly, implementing 360-degree video in business education does not necessarily require extensive technical expertise or large-scale production systems. In the present study, immersive videos were recorded with an Insta360 camera and edited using the platform's built-in web-based tools, which included basic features such as trimming, reframing, and clip selection. This workflow minimized technical complexity while enabling the efficient production

of instructional content. Because 360-degree video can be delivered through standard web-based platforms, in this case YouTube, and learning management systems, implementation does not require specialized virtual reality headsets or advanced computing resources.

Although entry-level 360-degree cameras suitable for instructional use are commercially available at a moderate cost (typically $300–$500 USD), equipment acquisition may still pose a barrier for some faculty or institutions, particularly when accessories such as tripods, microphones, storage devices, or captioning support are required. While software costs can be minimized through manufacturer-provided editing platforms or institutionally licensed tools, ongoing maintenance, equipment replacement, and technical support may require additional institutional investment.

Time commitment also represents a practical consideration. Depending on instructional goals and production complexity, faculty may anticipate several hours of planning, filming, editing, and accessibility preparation to produce short instructional segments. In many cases, however, immersive content can be developed alongside existing professional travel, site visits, or experiential activities, thereby reducing additional logistical burden and increasing instructional return on effort.

At the same time, effective implementation extends beyond camera operation and basic editing skills. Faculty preparation should also include training in multimedia production workflows, including storyboarding, audio narration, accessibility considerations (e.g., captions and alternative text), and integration into course materials. Instructors may benefit from professional development focused on pedagogical integration, such as designing active learning prompts, aligning immersive content with learning objectives, and facilitating student interaction within 360-degree environments. Faculty unfamiliar with multimedia production or emerging instructional technologies may initially experience hesitancy or concerns regarding technological complexity, time demands, or perceived instructional value.

Institutions seeking to support adoption should consider providing hands-on workshops, peer mentoring, and access to instructional designers or media specialists to assist with both technical implementation and pedagogical design. Even relatively modest institutional support may reduce barriers to adoption and increase the likelihood of sustained faculty use.

Limitations and Future Research

Several limitations should be acknowledged. First, this study relied exclusively on self-reported student perceptions collected from a single undergraduate business course taught by a single instructor at a single institution, which may limit the generalizability of the findings to other disciplines, institutional contexts, or instructional approaches. Because the study focused on perceptions rather than direct measures of learning, conclusions regarding instructional effectiveness or learning gains should be interpreted cautiously.

Second, the absence of a control or comparison group precludes causal claims regarding the effectiveness of 360-degree video relative to traditional instructional approaches or other immersive technologies. Additionally, the nonrandomized sample introduces the possibility of selection bias, and positive student perceptions may have been influenced, in part, by the novelty of the technology or instructor-specific implementation practices.

Although 360-degree video is generally more accessible than fully immersive virtual reality, disparities in student access to compatible devices, internet connectivity, and technological confidence may influence equity and scalability across learning environments. Furthermore, differences in instructor preparation, video quality, and pedagogical integration may affect the success of implementation.

Future research should address these limitations through experimental or quasi-experimental designs that include comparison groups, multiple instructors, and diverse institutional settings. Additional research is needed to examine objective learning outcomes associated with 360-degree video, explore longitudinal effects of repeated exposure, and identify best practices for instructional design and faculty implementation in business education.

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CONCLUSION

This exploratory study suggests that students perceive 360-degree video as an engaging and instructionally valuable tool in business education. While further research is needed to examine learning outcomes, the findings suggest that immersive video offers a promising, scalable approach to enhancing experiential learning within traditional classroom environments.

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From Generation to Evaluation: Teaching Critical Assessment of AI-Generated Marketing Output

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ABSTRACT

Generative artificial intelligence (GenAI) is increasingly embedded in student coursework and professional marketing practice. Although these tools can support idea generation and information access, unstructured use may encourage surface-level learning and cognitive offloading. This study examines a comparative AI evaluation assignment used in upper-level undergraduate marketing courses in which students compared outputs from two AI platforms and justified which response was superior based on reasoning quality, evidence, and strategic usefulness. Survey data from 124 students indicate that the evaluation-based approach was associated with higher student perceptions of learning, critical thinking, confidence in applying course concepts, and preparation for professional tasks, without higher perceived difficulty. The findings support integrating AI as an object of critique rather than solely as a content generator.

Keywords: Generative AI; marketing education; critical thinking; assessment design; Bloom's taxonomy

INTRODUCTION

Generative artificial intelligence has rapidly transitioned from a novel technology to a standard feature of both higher education and marketing practice. AI tools are increasingly used to summarize market research, generate insights, and produce strategic recommendations, reshaping how marketing decisions are developed and evaluated (Davenport et al., 2020; Huang & Rust, 2021). As these tools become embedded in professional workflows, business educators face a pressing curricular question: how should AI be integrated into marketing education in ways that reflect professional reality while preserving students' critical thinking and disciplinary judgment?

Although GenAI can support learning by providing rapid access to information and alternative perspectives, unstructured use has raised significant pedagogical concerns. Research on cognitive offloading demonstrates that individuals tend to delegate effortful cognitive tasks to external technologies, often reducing deep processing and reflective judgment (Risko & Gilbert, 2016). When applied to academic contexts, AI-generated outputs may obscure students' underlying reasoning and encourage uncritical acceptance of fluent but unreliable content (Kasneci et al., 2023). These risks are amplified when assessments emphasize final products rather than evaluative processes.

This challenge is particularly salient in marketing education. Professional marketing competence depends less on generating content and more on evaluating analyses, assessing evidence quality, and defending recommendations under uncertainty. Simply avoiding AI in coursework does not solve these issues. Excluding AI risks creating a disconnect between academic preparation and workplace realities, where marketers increasingly interact with algorithmic and AI-generated insights (Jarrahi, 2018; Raisch & Krakowski, 2021).

In response, this study examines an assessment design that reframes GenAI from a writing aid to an object of critique. Students compare outputs from multiple AI platforms and justify which response is superior using marketing concepts and professional judgment. The purpose of this paper is to (1) describe this comparative AI evaluation assignment and (2) assess student perceptions of learning, critical thinking, and professional preparedness following its implementation in upper-level marketing courses.

LITERATURE REVIEW

Generative AI in Higher Education

Research on AI in education consistently characterizes the technology as pedagogically ambivalent: capable of enhancing learning when structured effectively but potentially undermining learning when used passively (Holmes et al., 2019). GenAI tools can generate explanations, provide examples, and expose students to alternative viewpoints.

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However, these same capabilities raise concerns regarding automation bias, overreliance, and diminished self-regulation (Kasneci et al., 2023).

Cognitive offloading research suggests that when tools reduce the need for mental effort, learners often disengage from deeper cognitive processing, particularly when accountability for reasoning is low (Risko & Gilbert, 2016). In assessment contexts, this raises questions about validity, as AI-generated answers may mask students' actual understanding.

Critical Thinking and Human–AI Collaboration

Rather than replacing human judgment, AI systems are most effective when they augment decision-making and require human oversight (Jarrahi, 2018). In professional marketing contexts, AI increasingly provides preliminary analyses that must be interpreted, evaluated, and contextualized by human decision-makers (Davenport et al., 2020). Accordingly, the key human contribution shifts from content creation to evaluative judgment.

Educational research mirrors this insight. Structured AI use that requires critique, comparison, and justification is more likely to promote higher-order thinking than unstructured, answer-generation use (Holmes et al., 2019). When students are required to assess the quality of AI outputs, AI can serve as a catalyst for analysis rather than a shortcut.

Assessment Design and Bloom's Taxonomy

Assessment scholars emphasize that meaningful learning outcomes are achieved only when assessment tasks align with intended cognitive processes (Wiggins, 1998). Bloom's revised taxonomy distinguishes lower-order processes (remembering, understanding) from higher-order processes (analysis and evaluation) that require judgment and justification (Anderson & Krathwohl, 2001).

Recent work in marketing education argues that AI-era assessment must explicitly target these higher-order processes by requiring students to evaluate reasoning quality, evidence credibility, and strategic relevance rather than merely generate responses (Gonsalves, 2024). Comparative evaluation tasks are well aligned with this goal because they force students to articulate criteria and make defensible choices.

METHOD

Assignment Design

The comparative AI evaluation assignment was implemented in upper-level undergraduate marketing courses. The specific assignment varied by course and assignment type. Students entered a prompt based on the assignment requirement and generated responses using two different GenAI platforms. For each platform, students recorded their exact prompt and included the unedited AI-generated output.

Students then evaluated each response based on predefined criteria, including the quality of reasoning, use of evidence, logical coherence, and strategic usefulness. Finally, students justified which AI response was superior and explained their decision using relevant marketing concepts. The assignment explicitly positioned AI as an object of analysis rather than a source of final answers.

Evaluation Criteria

Students evaluated each AI response using predefined criteria provided in the assignment instructions. Examples of these criteria include:

- Reasoning quality (depth, clarity of justification, and defensible logic)
- Use of evidence and course concepts (relevance and accuracy)
- Logical coherence and organization (structure and internal consistency)
- Strategic usefulness (actionability and alignment with marketing objectives)
- Completeness and specificity (coverage of required elements and appropriate detail)

Assignment Example

Example Prompt: Using two different generative AI platforms, conduct secondary research on the ready-to-drink (RTD) coffee and energy drink categories. Analyze category characteristics, consumer segments, brand positioning, consumer motivations, and competitive differences among major brands. Provide evidence-based strategic insights that could be used in developing a marketing recommendation.

Students used two AI platforms to conduct secondary research on RTD coffee and energy drink brands.

AI Output Requirements

- Structured analysis of:
    - Category overview and consumer segmentation
    - Brand positioning and personality
    - Consumer motivations and need recognition
    - Cross-brand comparisons

Evaluation Focus

- Students documented:
    - Exact prompts and unedited AI outputs
    - Depth, credibility, and strategic usefulness of AI-generated insights

Critical Reflection

- Students assessed AI outputs using:
    - Marketing judgment
    - Market context and personal experience

Sample Student Evaluation of AI Output

ChatGPT provides clear structure and helpful marketing frameworks but relies mostly on general knowledge, which limits the reliability of its claims. It is strong for brainstorming, segmentation, and positioning ideas but does not provide verifiable data or sourcing.

Copilot offers more detailed and specific category insights, including market figures, brand developments, and trend explanations, making it more suitable for research that requires evidence and strategic depth. Both platforms are useful for developing marketing strategies and understanding consumer motivations, but neither should be used as a standalone source for academic work without outside data verification.

ChatGPT is best for clarity and idea generation, while Copilot is more effective for research depth and practical strategic application.

Participants and Procedure

The assignment was implemented during the Fall 2025 and Spring 2026 semesters across multiple sections of upper-level undergraduate marketing courses. Participation in the post-assignment survey was voluntary and anonymous. The final sample included between 123 and 124 respondents per item, reflecting minimal item-level nonresponse.

Measures and Analysis

Students completed a survey consisting of eight Likert-type items (1 = Strongly Disagree, 5 = Strongly Agree) assessing perceived learning, critical thinking, confidence, professional preparation, perceived challenge, and assessment preference.

One-sample t-tests were conducted for each item using the scale midpoint (3 = Neutral) as the test value to evaluate whether student perceptions differed from a baseline of no perceived effect. This approach is commonly used in instructional evaluation research when the goal is to test whether mean perceptions exceed neutrality. Because the measures are self-reported, the results should be interpreted as perceived (rather than objectively measured) learning outcomes.

RESULTS

Table 1 presents descriptive statistics and one-sample t-test results for all survey items.

Results indicate strong student agreement that evaluating and comparing AI outputs was associated with higher perceived learning ($M = 3.92$), enhanced understanding of professional-level recommendations ($M = 3.97$), and stronger perceived critical analysis skills ($M = 3.92$), all significantly above the neutral midpoint ($p < .001$). Students also reported higher confidence in applying course concepts to real-world contexts ($M = 3.76$) and feeling better prepared for professional tasks ($M = 3.76$).

Importantly, perceived difficulty did not differ significantly from the neutral midpoint ($M = 2.98$, $p = .796$), suggesting that increased evaluative engagement was not perceived as more challenging than traditional approaches. Preference items indicated support for incorporating more evaluation-based assignments ($M = 3.65$, $p < .001$), alongside moderate

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support for retaining traditional creating-based assessments (M = 3.39, p < .001), reinforcing a complementary rather than replacement role for the evaluation method.

Table 1: Student Perceptions of Comparative AI Evaluation Assignment

Survey Item	N	Mean	SD	t (vs. 3)	p-value
Compared to past exams/assignments where I created recommendations or answers from scratch, the evaluation method (analyzing and comparing AI-generated output) improved my overall learning experience.	124	3.92	0.761	13.456	p < 0.001
The evaluation method helped me understand how to develop a professional-level recommendation better than creating my own recommendations.	124	3.97	0.775	13.905	p < 0.001
The evaluation method improved my ability to critically analyze and compare recommendations compared to creating my own.	123	3.92	0.753	13.53	p < 0.001
The evaluation method was more challenging for me than creating my own recommendations.	123	2.98	1.044	-0.259	0.7960
The evaluation method helped me feel more confident in applying course concepts to real-world problems than creating my own recommendations.	123	3.76	0.853	9.835	p < 0.001
The evaluation method better prepared me for professional tasks compared to the creating method for exams/assignments.	123	3.76	0.813	10.311	p < 0.001
I would prefer to see more exams/assignments use the evaluation method instead of the creating method.	124	3.65	0.885	8.116	p < 0.001
I would prefer to see more exams/assignments use the creating method instead of the evaluation method.	123	3.39	1.013	4.271	p < 0.001

DISCUSSION

The findings provide empirical support for assessment designs that shift AI use from generation to evaluation. Students perceived the comparative AI evaluation assignment as enhancing learning, critical thinking, and professional preparedness without increasing perceived difficulty. These results align with research suggesting that higher-order cognitive engagement can be promoted when students are required to critique and justify decisions rather than produce answers from scratch.

The mixed preference results are particularly informative. Rather than advocating wholesale replacement of traditional assessments, students appear to value a balance between evaluative and generative tasks. This nuance strengthens the case for AI evaluation assignments as a pedagogical complement rather than a disruptive substitution.

IMPLICATIONS FOR MARKETING EDUCATION

For marketing educators, the results suggest that avoiding AI may be less effective than integrating it deliberately through evaluation-focused assessments. Comparative AI evaluation assignments preserve rigor, promote higher-order thinking, and mirror professional marketing tasks that increasingly involve assessing algorithmically generated insights.

Although this study is situated in a marketing context, the evaluation-based approach may be applicable across other business disciplines where students must assess the quality of analyses and recommendations, such as management, finance, accounting, and analytics.

LIMITATIONS

This study relies on self-reported perceptions collected immediately following the assignment, which may not fully capture objective learning outcomes or longer-term skill development. Future research could incorporate performance-based assessments (e.g., rubric-scored analyses of student critiques) and comparisons across different course contexts to evaluate the impact of AI evaluation assignments on measurable learning and decision quality.

The study also did not include a comparison group completing the same assignment without AI support, limiting conclusions regarding the relative effectiveness of alternative instructional approaches.

CONCLUSION

As generative AI becomes embedded in marketing practice, the role of the marketer increasingly centers on evaluating and interpreting AI-generated insights. This study demonstrates that comparative AI evaluation assignments are associated with higher student perceptions of learning, critical thinking, and professional preparedness while maintaining manageable levels of challenge. Reframing AI from a content generator to an object of critique offers a practical, scalable, and pedagogically grounded approach for integrating AI into marketing education.

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A Study of Business Student Program Factor Perceptual Changes: Pre, During and Post-COVID Perceptions

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ABSTRACT

Over thirteen years as part of an ongoing study of student perceptions of online versus face-to-face education, business students at an AACSB Jesuit, Catholic University were surveyed in before (2012 and 2018), during (2021) and following (2025) the Covid pandemic. With educational and technological improvements, prior research found that students' perceptions may change over time. Results indicate that student perceptions on the program factors of difficulty, student-to-student interaction and student-to-instructor interaction changed over this time period. However, students' perceptions of cheating continue to indicate that students feel it is easier to cheat online. Results have implications for instructors and administrators.

Keywords: Student Perceptual Changes, Program Factors, Online

INTRODUCTION

Over the past thirteen years, students and instructors have been surveyed four times on their perspectives of online versus face-to-face (FTF) education. The purpose of this article is to present the students' perspectives on program factors over these years – from before (2012 and 2018) through (2021) and following the pandemic (2025). Program factors are the decisions that the instructors make in developing the course. Course design and organization establish the student-to-student interaction, student-to-instructor interaction, students' critical thinking and cognitive engagement (Cui, Harrison & Handford, 2025). The factors studied include academic difficulty, academic integrity (cheating), student-to-student interaction, and student-to-instructor interaction. (Another important aspect to program factors is the instructor's choice of course technologies, but these results are not reviewed here.) The study tracks the same University setting where instructors design and deliver courses without assistance from instructional designers. (Note, the surveys also included questions for demographic factors and on individual perspectives, which are not reviewed in this paper.) We are unaware of any similar studies that outline this transition and current state of perspectives.

Students' perceptions of course structure and expectations are fundamental to student satisfaction, which may in turn impact upon their success (Beach, 2018: Blau et al, 2017; Eom & Ashill, 2016; Gering et al., 2018). Their attitudes and perceptions are important antecedents of the student's inclination toward online learning (Chawla & Joshi, 2012). Following the pandemic, a recent study highlighted the need for instructors to understand business student perceptions of online learning (Fang, Pechenkina, & Rayner, 2023). Instructor quality, course design, quick feedback and students' expectations strongly relate to perceived satisfaction (Tran, 2022). Differences between FTF and online education include pedagogical aspects such as developing a relationship with students, providing timely feedback and stimulating content (Brocato et al., 2015). Online education facilitates individualized and interactive learning (Guo & Li, 2024). Another study emphasized that a quality online course should include flexibility, responsiveness, student support, self-reported learning, interaction, ese of use of technology, and technical support (Hilton, Moos, & Barnes, 2020).

While administrators may believe that online and face-to-face education are equivalent (Allen & Seamen, 2013), research prior to and during the pandemic does not support this assumption (e.g. Baker & Unni, 2018; Barnes, 2017; Chua & Ruzgar, 2021; Fish & Snodgrass, 2014, 2020; Guest et al., 2018; Tratnik et al., 2019). However, prior research found that as students experience more online education, students' perspectives on the equivalences between online and FTF improve (Dobbs, Waid, & Del Carmen, 2009; Fish & Snodgrass, 2014; Platt, Amber & Yu, 2014; Richardson, et al., 2016). Prior to the pandemic, FTF education was the primary method at the University of study as few online courses were offered. The initial study was conducted in the fall of 2012 and indicated that students strongly preferred FTF education on most factors studied (Fish & Snodgrass, 2014, 2015). The pandemic caused a radical change in instruction as classes were forced online. During the pandemic, a study to evaluate students' perceptions on the differences between online and FTF education revealed a significant change from prior perceptions for academic difficulty, student-to-student interaction and student-to-instructor interaction but not on academic cheating (Fish & Snodgrass, 2022). Now that most students have experienced online education, students' perspectives following the

pandemic may be different than before or during the pandemic. Instructors need to understand students' perspectives in order to develop online courses that meet the current expectations.

REVIEW OF THE LITERATURE: INDIVIDUAL FACTORS UPDATE FOLLOWING THE PANDEMIC

Our intent in this literature review is not to be a comprehensive review of students' perspectives on the program factors of study (Fish & Snodgrass, 2014; 2015), but rather, to highlight some of the research results that occurred during and after the pandemic on these factors. Our survey has three main sections: demographic, individual factors and program factors. Our survey gathered demographic information for respondents on gender, age, class rank (undergraduate – freshmen, sophomore, junior, senior or graduate), undergraduate major or graduate program and potential concentration (graduate), online experience, self-reported level of technological understanding, whether the student was a transfer student, and if the student took an online course, the number of online courses taken. The individual factors, which are specific to the individual's perspectives on online education, include: motivation, discipline, self-directed learning and independence, schedule flexibility, time and cost investment, preference, happiness and appropriateness for learning environment. As noted above, our purpose in this paper is to review the program factors of academic difficulty, student-to-student interaction, student-to-instructor interaction, and academic cheating.

Difficulty. Student perceptions on the difficulty of online versus FTF courses over time have been mixed (Fish & Snodgrass, 2022). At the onset of the pandemic, business students indicated that online courses were not easier than FTF courses (Chua & Ruzgar, 2021); however, online students who perceived that they received more feedback reported less difficulty in adapting to online learning (Flores et al., 2024). Early in the pandemic, business students felt that online courses were harder when interaction was limited, particularly in business courses where communication and collaboration matter (Halász & Kenesei, 2025). Another study found that students perceived online learning as more difficult in terms of engaging them, a lack of interaction and requiring more self-directed effort, but they perceived online exams to be easier than FTF (Ionescu & Stan, 2023). A study conducted during the pandemic across multiple semesters found that students' perceptions of online academic difficulty changed over time, which indicated that engagement and academic effort may have an impact upon students' perceptions (Zizka & Probst, 2023). Additionally, during the pandemic, undergraduate business students reported difficulties in perceived inefficiencies, difficulties engaging with others and course materials, and limited interactions (Fang, Pechenkina, & Rayner, 2023). Online business students found online delivery less engaging and felt that online learning was more challenging. Another study noted that during the pandemic, online students felt that online courses were more difficult as they struggled to adapt to online courses, lacked direct contact with faculty, lacked motivation to attend online classes and struggled with time management issues (Almahesses, Mohsen & Amin, 2021). In our prior studies, University business students indicated that online education was easier than FTF; however, during the pandemic, students were indifferent to the two environments. Their perspective significantly changed from before to during the pandemic on difficulty (Fish & Snodgrass, 2022). Therefore, we pose the following research question: *Following the pandemic, have business students' perceptions of the academic difficulty of courses online versus FTF changed from before and during the pandemic?*

Student-to-Student Interaction. In business education, peer engagement, such as case discussions, group projects and networking, provide a key pedagogical feature to learning. At the onset of the pandemic, business student feedback highlighted the need for student-to-student interaction as a critical factor in students' acceptance of online learning (Halász & Kenesei, 2025). Studies during and after the pandemic reported that online learning tends to reduce opportunities for student-to-student interaction, which many students perceive as negatively impacting their learning (Cui, Harrison & Handford, 2025; Fang, Pechenkina, & Rayner, 2023). Undergraduate business students found group work challenging during the pandemic and perceived a lack of interaction with other students due to being online (Fang, Pechenkina & Rayner, 2023). In yet another recent study, students indicated that FTF education helped them to know their fellow students better; however, they felt that online education made group work easier (Ionescu & Stan, 2023). In one study during the pandemic, researchers highlighted students' perceptions of the 'artificial' relationships created during their online experiences; however, students felt that online students served as information sources (Kim, Bessy & Park, 2025). Yet another study noted that by incorporating advanced technologies, online education can enhance the student-to-instructor and student-to-student interaction (Guo & Li, 2024). Prior to the pandemic, University business students felt that there was less interaction with other students online than in the FTF environment (Fish & Snodgrass, 2022). During the pandemic, online students felt that there was even less interaction online than before the pandemic! There was a significant shift in their perspectives on student-to-student interaction over the years (Fish & Snodgrass, 2022). Therefore, we pose the following research question: *Following the pandemic, have*

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business students' perceptions of the student-to-student interaction online versus FTF changed from before and during the pandemic?

Student-to-Instructor Interaction. Student-to-instructor interaction is a critical component of education; however, prior research indicated mixed results on students' perceptions of their interactions with their instructors (Fish & Snodgrass, 2022). FTF education is often viewed by students as offering students real-time, rich interaction with instructors – especially in comparison to online education. Students noted that online education requires different modes of communication, resulting in different relationships between students and instructors (Kim, Bessy & Park, 2025). The pandemic radically changed the way that students and instructors communicated as online communication replaced, and continues to replace, the real-time FTF interaction. A recent study noted that online students perceived that online courses could be positive between students and instructors, but they did not feel that it was an improvement over FTF interaction (Syed et al., 2025). Another study noted that during the pandemic, online students felt that online courses were more difficult as they struggled to adapt to online courses, lacked direct contact with faculty, lacked motivation to attend online classes and struggled with time management issues (Almahesses, Mohsen & Amin, 2021). Economics and business students perceived online education as having 'poorer' student-to-instructor communication and interaction, which they perceived as being less effective than FTF education (Soliman, Salman, & Gamal Eldin, 2022). However, another study noted that by incorporating advanced technologies, online education can enhance the student-to-instructor and student-to-student interaction (Guo & Li, 2024). Another recent study noted that online education is appropriate for lecture delivery, review and self-paced study (Tamtekin Aydi, 2025). In general, research suggests that synchronous discussions may improve student-to-instructor interaction online; however, the lack of real-time cues and responses remains as a hurdle for instructors in online education (Peimani & Kamalipour, 2021). Another study noted that while online activities, such as structured discussions assist with facilitating interaction, online students feel that the interaction with instructors online is not as 'rich' as FTF (Deep, Chen, Ghos, & Rahaman, 2025). Current research highlights the need for student-to-instructor interaction as a critical factor in students' acceptance of online learning (Halász & Kenesei, 2025). In the original study, University business students felt there was less interaction with the instructor than FTF. This did not change before the pandemic (2018), but it decreased significantly during the pandemic (Fish & Snodgrass, 2022). Therefore, we pose the following research question: *Following the pandemic, have business students' perceptions of the student-to-instructor interaction online versus FTF changed from before and during the pandemic?*

Academic Integrity (Cheating). Researchers regularly find that students perceive that it is easier to cheat online than FTF (Fish & Snodgrass, 2022; Holden, Norris & Kuhlmeier, 2021). Course design and technology used to deliver the course content are often cited as reasons why students perceive that it is easier to cheat online than FTF (Moten et al, 2013; Stack, 2015; Tsai, 2016). Often, students perceive that cheating online is easier due to the lack of direct supervision in online test environments (Holden et al., 2021). Cultural social norms and attitudes may influence whether students believe cheating is acceptable (Ababneh, Ahmed & Deduosis, 2022). During the pandemic, undergraduate business students who perceived that it was easy and socially acceptable to cheat were more likely to cheat online than FTF (Ababneh, Ahmed & Deduosis, 2022). A systemic review of online cheating during the pandemic revealed that students – regardless of major – felt that cheating was higher online during the pandemic than before it (Newton & Essex, 2024). A more recent study noted that cheating online did not differ significantly from FTF when student perception and contextual factors, such as assessment type and course design, mattered (Yazici et al., 2022). Similar to many studies and in spite of technological advances to deter it, University business students have always perceived that it is easier to cheat online than FTF (Fish & Snodgrass, 2022). Therefore, we pose the following research question: *Following the pandemic, have business students' perceptions of academic integrity (cheating) online versus FTF changed from before and during the pandemic?*

Salient Conclusions for Our Study. Our literature review is not intended to be a comprehensive review of student individual factor research, but rather, an updating of the current status. The results highlight the ambiguity and 'mixed' results on difficulty, student-to-student interaction and student-to-instructor interaction. Our intent in this study is to highlight the transition that has occurred from before the pandemic to during the pandemic to post pandemic perceptions for students' perceptions of program factors. Due to the pandemic, most students experienced online education. Following the pandemic, where do students stand with respect to their perceptions of online versus FTF education? Specifically, our Research Question addressed within this paper is:

Research Question: Have online students' perspectives of online versus Face-to-Face education changed from before the pandemic (2012 and 2018) and during the pandemic (2021)?

H_{10}: Online business students' perspectives for program factors of online education are *the same* as their perspectives of FTF education as before the pandemic (2012 and 2018) and during the pandemic (2021).

H_{11}: Online business students' perspectives for program factors of online education are *not equal* to their perspectives of FTF education as before the pandemic (2012 and 2018) and during the pandemic (2021).

With the significant change to online education due to the pandemic, we are addressing the basic question "*have business students' perceptions of online versus FTF education changed?"*

Over the years, our research has demonstrated that due to technology changes as well as the pandemic, students' perceptions on most program factors of online versus FTF education continue to change (Fish & Snodgrass, 2022). Our prior research noted that during the pandemic, students' perceptions on the program factors of difficulty, student-to-student interaction, and student-to-instructor interaction had changed from before the pandemic (the original studies 2012 and 2018) to during the pandemic (2022). The question before us today is where are current students' perceptions now that students have had a chance to return to the FTF classroom.

As noted in our previous research (Fish & Snodgrass, 2014, 2020, 2022), perceptual studies differ in the size (small, medium, large universities), audience (e.g., scientific versus social sciences, business versus non-business, and graduate versus undergraduate), and method of research (e.g. interview, survey). The context of the study may be an important factor to consider in interpretation of the survey results, and the results presented here represent another datapoint in a complex continuing situation.

METHOD

At an AACSB-accredited, Jesuit Catholic University in the northeast, as part of a larger on-going study, in the spring of 2025 following the pandemic, business students completed an online Qualtrics-administered survey to assess their perceptions on online versus FTF education. The Academic Vice President and University Internal Review Board approved distribution of the survey. The survey was sent to students three times over March 2025 through a list server. The survey was originally sent in 2012, 2018 and 2021. The survey consisted of 3 major sections: demographic questions, Section A (online education perspective) or Section B (FTF education perspective). Demographic questions included questions on gender, age, class rank (undergraduate – freshmen, sophomore, junior, senior or graduate), undergraduate major or graduate program and potential concentration (graduate), online experience, self-reported level of technological understanding, whether the student was a transfer student, and if the student took an online course, the number of online courses taken. Then students who had completed at least one online course completed section A, while students who did not take an online course for the entire semester completed Section B. Section A and B had corresponding questions on the perspectives noted; however, Section A statements are specific to "I found" while section B statements are "I perceive". Specific individual perspectives addressed include motivation, discipline, self-directed learning and independence, schedule flexibility, time and cost investment, preference, happiness, and appropriateness for the learning environment. Program factors studied include: academic difficulty, academic integrity (cheating), student-to-student interaction, student-to-instructor interaction, and program technologies. The student survey can be accessed at: http://www.cambriainstitute.com/journals/j.brcacadjb.2015.04.01.wa04.pdf. Each factor was rated by the respondent using a five-point Likert scale: significant dislike, dislike, okay, like and significantly like. The last questions in Section A and B questioned the respondent on preference for the opposite environment (to the frame of reference of the questions), the individual's emotional happiness with the environment, and whether the individual felt online courses were appropriate for the University. In Section A, an open-ended question inquiring as to why they chose an online course completed the survey, while Section B ended with an open-ended question as to why the individual did not choose an online course.

RESULTS

Fewer students responded to the survey in 2025 as shown in Table 1. Significantly fewer business students (42) completed survey Section A than in 2021 during the pandemic (146). A few business students (12) indicated that they had not taken an online course at the University, and therefore, they completed Section B. Our focus in this article is on the students completing the online perspective over the four survey years.

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Table 1: Number of Students Online in 2012, 2018, 2021, 2025 Surveys.

# of Students	Online	FTF	Total
2012	44	67	111
2018	82	52	134
2021	146	12	158
2025	42	12	54
Total	314	143	457

While the output was discrete with the actual number of responses for each survey question, for contextual understanding of the changes that exist over the 4 survey years, the average online student program responses are noted in Table 2 and as shown in Figure 1. In spite of sending the survey link out three times over the semester, the number of responses dropped significantly from during the pandemic (2021) to after the pandemic (2025). (The numerical counts for each question by study year can be found in the Appendix.) Given the survey setup, a student score of '3' was the point of indifference between FTF and online education. For online students, scores above 3 indicated that they felt online education was 'more' or 'harder' than FTF, while scores below 3 indicated that they felt online education was 'less' or 'easier' than FTF.

Over the four study years, online business students' average response indicated that they felt online was easier than FTF. While during the pandemic, the average student response on difficulty was 'indifferent' to the two environments, today's online business students' responses are similar to responses in the original study (2012). As for student-to-student interaction, prior to the pandemic, the average online student response indicated that there was 'less' interaction online than FTF and appeared to be 'indifferent'('3;) to the two environments just prior to the pandemic. During the pandemic, students felt that there was 'less' interaction online than FTF; however, today's online students are more indifferent to the interaction than during the pandemic. In the original study, online business students felt that there was 'less' student-to-instructor interaction and appeared to be 'indifferent' ('3.04') to the two environments just prior to the pandemic. During the pandemic, similar to student-to-student interaction, students felt that student-to-instructor interaction was much 'less' than prior studies. Today's online business students are 'indifferent' to the two environments. As for academic integrity, online business students indicated that it is easier to cheat online than FTF over all four studies.

This study's intent was to compare students' perspectives for the program factors over the years however, it was important to test whether the populations were indifferent to the two learning environments. Indifference to the two environments was indicated by the respondents with a response of '3' (the scale midpoint) on any factor. As shown in Table 3 (two-tailed t-tests for a hypothesized difference to the midpoint (3)), in the original study (2012) and just prior to the pandemic (2018), all of the program factors differed significantly from the 'indifference' point. During the pandemic (2021), students appeared to be 'indifferent' to the two environments. Current online business students' perspectives (2025) of the two learning environments statistically differed from the midpoint for the program factors of difficulty and cheating, but online business students' perspectives of student-to-student interaction and student-to-instructor interaction reveal 'indifference' to the two environments.

Table 2: Online Student Average Responses –2012, 2018, 2021 & 2025

Factor	Online Average Response			
	2012	2018	2021	2025
Difficulty	2.43	2.57	2.99	2.48
Student-to-Student Interaction	2.64	3.00	2.39	2.86
Student-to-Instructor Interaction	2.61	3.04	2.49	3.02
Cheating	2.45	2.34	2.44	2.36

Figure 1. Student Perceptions OL Program Factors

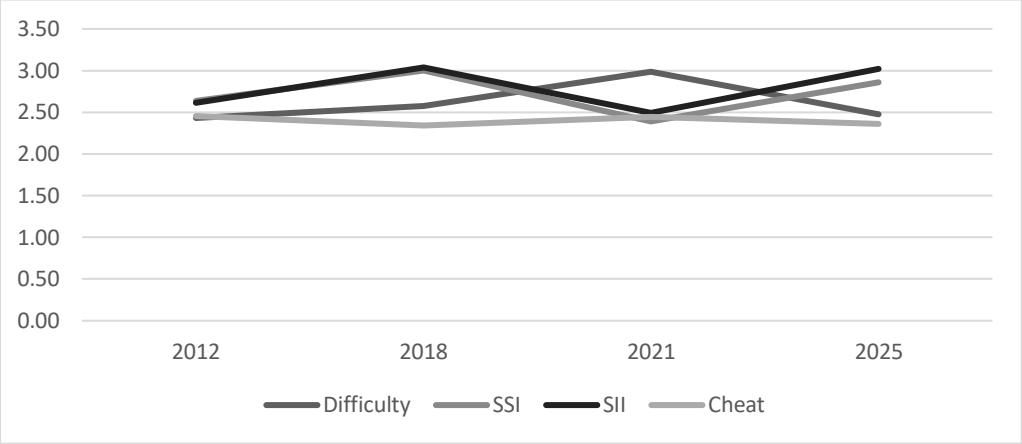

Table 3. Two-Tail T-Test Significance from Hypothesized Mean Difference from Midpoint (3) Online versus FTF Education

Factor	2012	2018	2021	2025
Difficulty	0.0002 *	<.001 *	0.8780	0.0002 *
Student-to-Student Interaction	0.0097*	<.001 *	<.001 *	0.4027
Student-to-Instructor Interaction	0.0134*	<.001 *	<.001 *	0.8781
Cheating	0.0004*	<.001 *	<.001 *	<.001 *

* $p \leq .05$

As the survey data was discrete, Chi-Square analysis using the contingency coefficient as the nominal value was performed for the online students' individual factors. In this study, we were interested in analyzing changes between the years on the individual factors. As shown in Table 4, online business student perceptions significantly changed across the survey years for the program factors of difficulty ($p \leq .001$), student-to-student interaction ($p=.012$), and student-to-instructor interaction ($p \leq .001$). Their perceptions of cheating ($p=.451$) did not change over the years.

Table 4. Online Student Perspectives of Program Factors by Survey Year (2012, 2018, 2021 & 2025)

Metric	Pearson Chi-Square Value	df	Asymptotic Significance (2-sided)	Pearson's R	Spearman Correlation
Difficulty	33.296	12	<.001*	.104	.095
Student-to-Student Interaction	25.655	12	.012*	.003	-.007
Student-to-Instructor Interaction	38.994	12	<.001*	.057	.047
Cheating	11.935	12	.451	-.005	.006

* $p \leq .05$

DISCUSSION

The focus of this long-term study was to analyze the changes in business students' perceptions on program factors over the years. Online business students at this University perceptions have changed over the four years of study with respect to the program factors of difficulty, student-to-student interaction and student-to-instructor interaction, but students have not changed their perception of cheating. Online business students' perceptions changed over the four years of study, which supports the concept that students' perceptions can change over time (Dobbs, Waid, & Del Carmen, 2009; Fish & Snodgrass, 2014; Platt, Amber & Yu, 2014; Richardson, et al., 2016). Difficulty, student-to-

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student interaction and student-to-instructor interaction are related to decisions that instructors make in designing and managing their online courses. With respect to student-to-student interaction and student-to-instructor interaction, given these factors do not significantly differ from the indifference point between the two environments, it appears that instructors may have bridged the gap between FTF and online education at this University. However, students do not view the difficulty associated with courses or cheating equally between the two environments.

Focusing on these changes, we note the following:

Difficulty. Instructors impact upon the difficulty of the course through their course design and how they manage their courses, whether it is online or FTF. In spite of changing technology and more students taking online courses due to the pandemic, it is interesting to note that today's online business students' perception of difficulty has essentially returned to the original perception, which favors online as being 'easier' than FTF. This supports some similar studies (Flores et al., 2024), but contrasts others (Almahesses, Mohsen & Amin, 2021; Fang, Pechenkina, & Rayner, 2023; Halász & Kenesei, 2025; Ionescu & Stan, 2023). While during the pandemic, students were indifferent to the two environments with respect to difficulty, today's business students perceive the online environment to be easier than FTF.

Student-to-student interaction. Over the four studies, students' perception of student-to-student interaction has significantly changed. Many studies on students' perceptions of student-to-student interaction during the pandemic found students to negatively view their interaction with one another online versus FTF (Cui, Harrison & Handford, 2025; Fang, Pechenkina, & Rayner, 2023; Ionescu & Stan, 2023; Kim, Bessy & Park, 2025). Similar to a study that noted positive perceptions (Guo & Li, 2024), at this University, current online business students are 'indifferent' to the student-to-student interaction online versus FTF. Perhaps during the pandemic at this University, students adjusted to interacting with one another and adjusted to this interaction being online. Or perhaps, University instructors have developed their online activities to encourage student-to-student interaction.

Student-to-instructor interaction. Prior research noted the mixed perceptions of students with respect to the two environments with respect to this factor (Fish & Snodgrass, 2022). Since 2012, students' perception of student-to-instructor interaction between the two environments have changed. Similar to student-to-student interaction, current online business students at this University perceive the interaction with their online instructors similarly to their FTF instructors. This result contrasts other studies where students negatively perceived the student-to-instructor interaction online (Almahesses, Mohsen & Amin, 2021; Deep, Chen, Ghosh & Rahaman, 2025; Soliman, Salman & Gamal Eldin, 2022), but these results support another study where students perceived the student-to-instructor interaction positively (Guo & Li, 2024). As online education typically requires different modes of communication (Kim, Bessy & Park, 2025), perhaps students have adjusted to interacting online with their instructors or instructors have adjusted their online courses to meet the interaction levels of students. Current research highlights the need for student-to-instructor interaction as a critical factor in students' acceptance of online learning (Halász & Kenesei, 2025). Perhaps this is just the beginning of the change for students toward indifference to the two environments.

Academic Integrity (Cheating). It's not surprising that students' perspectives on cheating have not changed and favor online as being easier to cheat than FTF. This result confirms many other researchers (Ababneh, Ahmed & Deduosis, 2022; Holden et al., 2021; Moten et al, 2013; Newton & Essex, 2024; Stack, 2015; Tsai, 2016). In spite of technological advancements, students still perceive that it is easier to cheat online. Assuming education continues to utilize online education, with the increasing potential for students to utilize artificial intelligence such as ChatGPT, technology to detect academic dishonesty is needed today more than ever before.

CONCLUSIONS

Current online business students' perceptions have changed on the program factors of study since our original study in 2012. Specifically, students' perceptions on difficulty, student-to-student interaction and student-to-instructor interaction. Additionally, for the student-to-student interaction and student-to-instructor interaction, students' perceptions indicate indifference between the two educational environments. This is a significant result for this teaching institution that prides itself on teaching . Reasons for this 'indifference' are not known at this time; however, instructors' decision in designing online and FTF courses may contribute to these perceptions. While technology has advanced since our original study in 2012, online business students still perceive that it's easier to cheat online. While this is not a 'new' finding, it remains as a serious concern for online education. Over the next quarter century, education

will continue to add online instruction – either as entire courses or as components. Future research should continue to study student and instructor perceptions with respect to program factors for complete online and hybrid education.

Limitation. There was a dramatic drop in responses from prior to (2018) and during the pandemic (2021) to after the pandemic (2025). Perhaps, just prior to the pandemic, more students had experienced online courses than the original study due to a growth in online education at the University. As for during the pandemic, most students were 'forced' to take at least one class online due to the nature of the pandemic. As for the significant drop, it may be attributed to 'survey' fatigue as well as fewer students at the University.

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Appendix: Count by Year

I perceive online courses to be _____ in difficulty than face-to-face courses.						
	1	2	3	4	5	Total
2012	7	17	14	6	0	44
2018	8	29	35	10	0	82
2021	15	29	56	35	11	146
2025	3	21	14	3	1	42
Total	33	96	119	54	12	314

I perceive the interaction with other students in the online environment to be ____ compared to the face-to-face environment.						
	1	2	3	4	5	Total
2012	2	21	13	7	1	44
2018	13	29	22	15	3	82
2021	40	41	43	12	10	146
2025	4	13	13	9	3	42
Total	59	104	91	42	17	314

I perceive the interaction between the instructor and students in the online environment to be _____ compared to the face-to-face environment.						
	1	2	3	4	5	Total
2012	4	20	10	9	1	44
2018	5	33	34	8	2	82
2021	31	48	45	8	14	146
2025	2	11	16	10	3	42
Total	42	112	105	35	20	314

I perceive that it is ____ for students to cheat in an online course than in face-to-face courses.						
	1	2	3	4	5	Total
2012	6	19	13	5	1	44
2018	15	27	37	3	0	82
2021	21	51	63	8	2	145
2025	4	20	17	1	0	42
Total	46	117	130	17	3	313

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When First Impressions of Financial Data Can Be Wrong

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ABSTRACT

At times, the data presented in firms' financial statements can seem puzzling. This article describes instances in which the reported figures could leave the firm's stakeholders with a first impression that the data must be in error, as they are difficult to believe or even counterintuitive. As student detectives address the discussion questions provided, they encounter the discretion provided to firms in designating both quarterly-reporting periods and the components of cost of goods sold. In addition, they learn that both a sizable falloff between a firm's current and quick ratios and a spectacular return on stockholders' equity might not signify what they often imply. Other situations addressed include a firm with huge gross profits that nevertheless felt it necessary to liquidate, a retailer of discretionary goods that somehow fared much better than a service firm during an economic meltdown, and a firm reporting different amounts for its account changes depending on which financial statement one looks at.

A teaching note provides suggested answers to the discussion questions, learning takeaways, and follow-up discussion points for instructors.

Keywords: financial statement analysis, accounting-disclosure differences among firms, ratios that can inadvertently mislead

INTRODUCTION

It's been said that you only have one chance to make a first impression. As is true for individuals, financial data reported by firms also make a first impression. When such data appears in audited financial statements, it can seem reasonable to rely on such information. For example, if one were confronted with firms that surprisingly report a seasonal sales pattern that does not seem to make sense, a gross-profit percentage that far surpasses that of its peers, or an annual return on stockholders' equity that consistently ranks among the highest achieved by Fortune 500 companies, who is to say that they did not occur, no matter how puzzling they might be?

Fortunately though, when first impressions of financial data seem counterintuitive and difficult to understand, they can more often than not be explained upon further analysis and inspection. During this process, revelations can include the sometimes-surprising flexibility allowed to firms in their reporting and several situations where financial ratios correctly calculated can inadvertently mislead. Armed with this knowledge, those analyzing financial data are more likely to take away a clearer understanding of the nature of the firm's business, its financial condition, and results of operation.

The following mysteries are to be considered and resolved here:

1. Of two electronics retailers, why was it the successful one that appeared to have excessive inventory and greater difficulty paying its suppliers?
2. Why did a firm with manageable inventories and huge gross profits find it necessary to liquidate?
3. During an economic meltdown, why did operating cash disappear for a service firm yet greatly accelerate for a retailer of discretionary consumer goods?
4. Why did Quarter 1 appear to be the busiest period for a firm whose sales actually peaked during Quarter 4?
5. How did two firms selling similar merchandise at similar price points report very different gross-profit percentages?
6. How did a manufacturer of personal care products seemingly achieve yearly returns on stockholders' equity ranging from 190% to 2,023%?
7. Why did the year's changes reported in key operating accounts differ depending on which of the firm's financial statements one examined?

Students completing these exercises should be better able to interpret financial ratios, consider the effect of accounting-disclosure differences, recognize the limitations of financial metrics, analyze the economic context in which data arise, and better navigate between financial statements.

THE PUZZLING FINANCIAL DATA

1. Do The Ratios Make Sense?

The information presented in Table 1 comes from data contained in the Fiscal 2023 10-Ks of two electronics retailers. The focus is on 2023 because that was the last 10-K that Conn's filed, prior to closing all of its stores in 2024.

Table 1: Financial Data for Two Electronic Retailers

Financial Data	Conn's (failed firm)	Best Buy (Thriving Firm)
Days' Purchases in Accounts Payable	43 days	56 days
Accounts Receivable as % of Current Assets	57%	12%
Inventory as % of Current Assets	28%	63%
Current Ratio	2.58 times	1.00 times
Quick Ratio	1.71 times	0.30 times
Falloff from Current to Quick Ratio	34%	70%

First Impression -- It could appear that the column headings in Table 1 were inadvertently reversed – with Best Buy's data actually in the middle column and Conn's in the right-most column. The reasoning would be that of the two firms, it would most likely be Best Buy, the thriving firm, that

- had been financially able to pay its suppliers almost two weeks earlier.
- had an abundance of current assets to cover its current liabilities.
- had a smaller falloff from its current ratio to its quick ratio, often suggestive of a firm that had its inventory well under control.

Discussion Questions:

1. Should taking a shorter (longer) time to pay suppliers always be viewed as an indicator of financial strength (weakness)? Explain.
2. How could Best Buy, the thriving firm, have met its current obligations if its current assets merely equaled its current liabilities?
3. How could Conn's, the failed firm, have had an inventory problem even though its merchandise as a percent of current assets was much less than that of Best Buy? Suggest (no need to compute) an alternative financial measure that could better identify firms that have difficulty selling inventory.
4. Explain how the receivables data for Conn's could have kept the falloff from its current to quick ratio relatively small even if it had had difficulty selling its inventory.

2. Why Did They Cease Operations?

The financial data shown in Table 2 came from all the 10-Ks filed by a retailer that went bankrupt in 2014 and shortly thereafter closed all of its stores. The firm had been in business since 2003, but did not go public until 2011.

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Table 2: Data for A Financially Challenged Retailer

Financial Data	2011	2012	2013
Change in Sales Revenue vs. Prior Year	+ 28%	+ 8%	+ 10%
Gross Profit (Margin) Percentage	57.5%	55.7%	54.0%
Days' Sales in Inventory	8 days	10 days	8 days

First Impression – The data in Table 2 do not trend the way one would expect for a firm that would soon wind up filing for bankruptcy and subsequently liquidating. Consider the following plusses for the business:

- Although sales revenue rose the most in the year of the IPO, it kept increasing every year.
- Most firms can only dream of a gross profit percentage in excess of 50%, and yet this firm comfortably surpassed that mark in all three years.
- Inventory turned over in ten days or less in all three years.

Discussion Questions:

1. Suggest one (or several) lines of retail that regularly could *simultaneously* experience such a high gross profit percentage and such a low days' sales in inventory?
2. Under what circumstances would a firm with a gross profit percentage in excess of 50% find itself unprofitable and unable to continue in business? Explain.

3. What Caused Such Dramatic Changes in Two Firms' Sources and Uses of Cash?

The cash-flow information presented in Table 3 is from the 10-Ks filed by two firms for the same two consecutive years (called X and X+1 here) that occurred sometime during the 2015-2025 period. One firm provides a service, while the other is a retailer of discretionary consumer goods. After it had increased by 2.8% in Year X, Global GDP declined by 3.0% during Year X+1, amounting to the largest downturn in the world economy since the Great Depression (Gagnon, Kamin, and Kearns, 2023).

Table 3: Cash-Flow Data for Two Firms

Company	Year	Operating Activities	Financing Activities
Service Firm	X	$8,425,000,000 Cash Provided	$2,880,000,000 Cash Used
	X+1	$3,793,000,000 Cash Used	$19,356,000,000 Cash Provided
Retailer	X	$196,818,000 Cash Used	$786,504,000 Cash Provided
	X+1	$1,416,731,000 Cash Provided	$352,588,000 Cash Provided

First Impression -- The data in Table 3 seem to be the reverse of what one might expect:

- During challenging economic times, as was the case in Year X+1, discretionary product purchases can decline sharply, while many services are viewed as essential and continue to be in demand.
- But as shown in Table 3, the organization providing services saw its operating activities *use* $3.7 billion of cash in X+1, $12.1 billion less favorable than the $8.4 billion of cash *provided* by operations during the preceding year.

- On the other hand, the retailer of discretionary consumer goods saw its operating activities *provide* $1.4 billion of cash in X+1, $1.6 billion more favorable than the $200 million of cash *used* by operations during the preceding year.

Discussion Questions:

1. What event occurred at some point during the 2015-2025 period that caused such a large decline in Global GDP?

2. Suggest one (or several) service firms whose cash from operations would inevitably have been adversely affected by the event you cited in (1).

3. Suggest one (or several) retailers of discretionary consumer goods whose cash from operations would very likely have been favorably affected by the event you cited in (1).

4. Which Quarter Was the Busiest?

Panera Bread operated 877 bakery-cafes at the end of 2005. Its restaurants were usually sited near malls and other major shopping areas, locations that attract especially large numbers of shoppers between Thanksgiving and Christmas. Table 4 presents the quarterly sales data Panera included in its 2005 and 2006 10-Ks. In each 10-K, firms were required to disclose information for their current and prior years to facilitate year-to-year comparisons.

Table 4: Quarterly Sales Distributions Reported in Panera's 10-Ks

	Reported	**in**		**2005**	**10-K**		**Reported**	**in**		**2006**	**10-K**
Quarterly Period	**2004 Sales**	% in Quarter		**2005 Sales**	% in Quarter		**2005 Sales**	% in Quarter		**2006 Sales**	% in Quarter
Q1	$130	27%		*$178*	*28%*		*$144*	*22%*		$194	23%
Q2	$105	22%		*$140*	*22%*		*$152*	*24%*		$197	24%
Q3	$114	24%		*$149*	*23%*		*$158*	*25%*		$205	25%
Q4	$130	27%		*$173*	*27%*		*$186*	*29%*		$233	28%
Qs 1-4	$479	100%		*$640*	*100%*		*$640*	*100%*		$829	100%

In Table 4, data from Panera's 2005 10-K included quarterly sales distributions for 2004 and 2005, while data for 2005 and 2006 were the focus in its 2006 10-K. Thus, quarterly sales distributions for 2005 appear twice in Table 4, once as the current year in the 2005 10-K and then as the prior year in the 2006 10-K. All dollar amounts in Table 4 are in millions.

First Impression -- One might question the accuracy of the data in Table 4, because the quarterly sales distributions shown are puzzling for a number of reasons:

- Given that Paneras are near areas that draw many year-end holiday shoppers, the sales distributions in the 2005 10-K are surprising. One would expect that Quarter 4 would be the firm's busiest quarter, rather than being tied with or behind Quarter 1's sales.

- Panera itself seemed unsure as to how many sales occurred within each quarter of 2005. *As highlighted in italics,* when in its 2006 10-K Panera distributed 2005 sales among quarters for a second time, 19% of sales originally reported for Quarter 1 in the prior 10-K were reallocated to other quarters [($178 - $144) / $178]. Sales for Quarter 4 now comfortably exceed those for Quarter 1, as one would expect.

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Discussion Questions:

1. What could Panera have done in 2005, without distorting its daily sales, that made it likely that Quarter 1 would *appear* to be as busy or busier than all other quarters, when in all likelihood Quarter 4 was *actually* the busiest?

2. What challenges did the reporting practice you cited in (1) present to an analyst who wished to contrast Panera's quarterly sales pattern with that of its competitors in the restaurant business?

3. Assuming the reporting practice you cited in (1) is an acceptable practice, how could Panera have lessened any confusion that might have arisen among financial statement users?

4. What did Panera most likely do in 2006 that caused the firm to reallocate 19% of the sales it had originally reported as occurring in Quarter 1 of 2005?

5. A Perfect Merger?

The information presented in Table 5 comes from the 2024 10-Ks of two department stores that compete across the U.S. They target (pun intended?) the same customer base and sell products at similar price points.

Table 5: Financial Data for Two Discount Retailers

As % of Sales Revenue	Kohl's	Target
Sales Revenue	100.0%	100.0%
- Cost of Sales	62.8%	71.8%
= Gross Profit	37.2%	28.2%
- Operating Expenses	34.5%	20.6%
= Left After All Operating Costs	2.7%	7.6%

First Impression -- The data in Table 5 might seem to suggest that considerable synergies could occur if these two retailers were to merge, because:

- Kohl's cost of sales percentage was much lower than that of Target's.
- Target's operating expenses percentage was much lower than that of Kohl's.
- By leveraging each firm's apparent expertise at cost control, it might seem that the combined firm could have 16.6% of sales revenue left after all operating costs (100% - 62.8% - 20.6%).

Discussion Questions:

1. Assume you have learned that these retailers used discretion in how they classified their distribution-center costs. Indicate where you believe each firm included those costs on its income statement.

2. Is 16.6% of sales revenue a realistic left-over figure for the potentially merged firm? If not, what is a more likely percentage? Explain.

3. In light of the discretion given to firms, what could (or should) they do to reduce the potential confusion among financial-statement users and better serve their needs?

6. How Did Returns on Stockholders' Equity Get So High?

Colgate-Palmolive, a manufacturer of personal care products, has regularly been included among those Fortune 500

companies earning the highest returns on stockholders' equity (ROSE). The information presented in Table 6 is from Colgate-Palmolive's 10-Ks and annual issues of the *Fortune 500*.

Table 6: Colgate Palmolive's Returns on Stockholders' Equity

Year	Ending Retained Earnings		Return on Stockholders' Equity	ROSE Rank Among *F500* Firms		Median ROSE for *F500* Firms
2024	$26.1 billion		1,363%	1st		14.2%
2023	$25.3 billion		378%	3rd		15.3%
2022	$24.6 billion		445%	4th		17.4%
2021	$24.4 billion		356%	2nd		17.5%
2020	$23.7 billion		363%	10th		10.6%
2019	$22.5 billion		2,023%	1st		13.2%
2015-2018	$18.9 - $21.6 billion		*	*		12.9% - 14.5%
2014	$18.8 billion		190%	8th		14.2%

* Could Not Be Calculated for 2015-2018

First Impression -- The data in Table 6 could make one wary of the calculations made by Fortune:

- It's hard to believe that the firm achieving the highest ROSE among the F500 on two different occasions was a company that operates in such competitive product categories as soap, dishwashing liquid, and toothpaste.

- In 2019 and 2024, the firm's ROSEs of 2,023% and 1,363% were, respectively, 153 and 96 times greater than the 13.2% and 14.2% medians for all F500 firms.

- Even if one focuses on the lowest annual ROSE shown in Table 6, the 190% still equates to a return of over 3.7% *per week.* And a return of 2,023% works out to 38.9% *per week!*

Discussion Questions:

1. What situation would have made it impossible to calculate a return on stockholders' equity for Colgate-Palmolive during the 2015-2018 period?

2. During 2014 and from 2019-2024, was Colgate's stockholders' equity more likely to have been very low, somewhat low, neither high nor low, somewhat high, or very high? Explain.

3. Was the stockholders' equity size you described in (2) likely the result of the firm lacking sufficient profitability? If not, what might have been the cause?

4. Explain how this exercise shows that a focus on the return on stockholders' equity could at times send a much-too optimistic signal to a firm's present and future stakeholders.

7. Why Are There Multiple Amounts for the Accounts Receivable and Inventory Changes?

Changes that occur in accounts receivable and inventory balances during the current year are found by comparing the beginning and ending amounts for those items on a firm's comparative balance sheet. But when changes in those accounts are shown on a statement of cash flows as adjustments to net income, they must be limited to those changes that reflect (1) differences between customers' payments on account and their credit purchases and (2) differences between the firm's purchases and its cost of goods sold. In this way, the reported cash from operating activities will reflect the cash effect of the firm's transactions with customers and suppliers rather than the effect on the firm's net income. (Note: Differences in the firm's accounts payable account would also be relevant here, but they are excluded to keep this illustration more manageable).

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The information presented in Table 7 is from the 2024 10-K of Home Depot. During that year, the firm acquired SRS, a major roofing products company, for $18 billion.

Table 7: Changes in Accounts Receivable and Inventory on Home Depot's 2024 Financial Statements

Financial Data	Amount Shown on Comparative Balance Sheet	Amount Shown in Operating Activities Section of Statement of Cash Flows
Change in Accounts Receivable	+ $1,575,000,000	- $174,000,000
Change in Inventory	+ $2,475,000,000	+ $743,000,000

First Impression -- Something must be wrong here! How can there be two answers to the question of how much did these accounts change during the year?

- The changes in accounts receivable and inventories shown on the comparative balance each differ by over $1.7 billion from the changes in those *same accounts* shown in the operating-activities section of the statement of cash flows *for the same year.*

- The reported changes in accounts receivable and inventory were far greater on the comparative balance sheet than in the operating-activities section of the statement of cash flows.

- For the receivables change, an enormous increase was reflected on the comparative balance sheet while a decrease was reported on the statement of cash flows.

Discussion Questions:

1. Where on Home Depot's 2024 statement of cash flows would you expect to find the $18 billion cash outlay it made to acquire SRS?

2. Explain how your answer in (1) can aid in accounting for the huge differences in amounts shown for the accounts receivable and inventory changes in 2024, depending on which financial statement is examined?

3. How could firms reduce confusion that can arise when statement users are confronted with such differences?

TEACHING NOTE

Student Audiences
Students should be comfortable with the calculation and purpose of the financial measures defined and featured therein (current ratio, quick ratio, days' purchases in accounts payable, and return on stockholders' equity) and the format and structure of the statement of cash flows. This exercise can be used in Intermediate Accounting and Financial Statement Analysis classes at the undergraduate and graduate levels. In addition, it can serve as a capstone assignment near the end of a higher-level Introductory Accounting course or as part of an accounting module in a Corporate Finance course.

Time Commitment
This exercise can easily be divided into its seven parts and used in a variety of class sizes. During each of seven in-person classes, students could break out into teams for fifteen or twenty minutes to collaborate on the issue covered that day. Conclusions reached by the various teams could then be compared and contrasted in class. Of course, depending on the level of the course and the topics covered therein, the instructor could choose to cover several, but not all, of the seven puzzles that are presented here.

On the other hand, the entire exercise can be given out as a homework assignment to individuals or teams in an in-person or online class. Most students should complete this exercise in ninety minutes, with the time divided about equally between reading the text and addressing the discussion questions. In an on-ground class, a follow-up

conversation could take fifty minutes, especially if students are prompted to defend their answers on the discussion questions and the instructor pursues the follow-up discussion points provided.

Suggested Answers, Learning Takeaways, and Follow-up Discussion Points

1. Do the Ratios Make Sense?

Suggested Answers:

1. Paying suppliers more quickly could reflect financial strength, but it could be the result of a firm's efforts to calm worried suppliers. Taking longer to pay suppliers could reflect financial weakness, but it often results when a powerful firm is in a position to extract more favorable credit terms from its suppliers.

2. Very low current ratios are sometimes associated with those retailers who have the clout to dictate longer payment periods with their suppliers. The large accounts-payable balances they routinely carry can increase their current liabilities to the point where they approach the level of their current assets. This need not pose a problem because current obligations are generally met not by liquidating current assets but instead through the use of ample, predictable daily net cash inflows from operations.

3. Inventory could be a seemingly smaller percent of a firm's current assets not because it is small, but because it appears to be small only in relation to the large size of the firm's other current assets. The days' sales in inventory measure will more accurately identify the existence of excessive inventory, especially when compared to peers.

4. The current and quick ratios are calculated as follows:

$$\text{Current Ratio} = \frac{\text{Cash + Short-Term Investments + Accounts Receivable + Inventory + Prepaid Expenses}}{\text{Current Liabilities}}$$

$$\text{Quick Ratio} = \frac{\text{Cash + Short-Term Investments + Accounts Receivable}}{\text{Current Liabilities}}$$

It is apparent from the data presented in Table 1 that Conn's was awash with accounts receivable. Because those receivables greatly pumped up the numerators for *both* its current and quick ratios, excluding a sizable inventory total from the quick ratio's numerator was much less likely to dramatically reduce that ratio relative to the current ratio *because huge receivables remained in both financial measures.* It was the huge accounts receivable that lessened the falloff from Conn's current to quick ratio. It is not suggestive of low inventory in this case.

Learning takeaways: When asking whether a low days' purchases in accounts payable and a relatively small falloff from the current to quick ratio are signs of a financially strong firm, the answer is "it depends"! It could be so, but on the other hand, as in the case of Conn's, they could signal the need for worried suppliers to get paid more quickly and the fact that a large receivables balance masked the presence of huge unsold inventories. Similarly, a low current ratio, rather than signifying inadequate current assets, could result from large current liabilities that resulted from a powerful firm's ability to extract more generous payment terms from its suppliers.

Follow-up discussion with students: Examination of the firms' 10-Ks revealed that unsold inventories were a major problem at Conn's, as its days' sales in inventory was 167 days -- more than three times Best Buy's 54 days. (Conn's and Best Buy, 2024). A financial measure shown to be superior to the current ratio in gauging a firm's ability to meet its current obligations is *cash from operations as a percent of average current liabilities* (Gosman, Gazi, Kennedy, and Lindus, 2025). Reference to the firms' statements of cash flows reveals that this measure was +17% for Best Buy, but a negative -15% for Conn's (Conn's and Best Buy, 2024). Conn's huge accounts receivable balance enhanced its current and quick ratios but it had not yet yielded any cash from operations.

2. Why Did They Cease Operations?

Suggested Answers:

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1. Among retailers, restaurants and bakeries could be first to come to mind. The data presented is for Crumbs Bake Shop, which had become the largest cupcake chain in the U.S. Gross profits for bakeries generally must be on the high side to hopefully cover such major operating expenses as rent, labor, and possible product waste. Ingredients needed for making cupcakes have a short shelf life, so a DSI as low as 8-10 days would be the norm.

2. A gross profit in excess of 50% will not lead to net income if the firm's operating expenses exceed 50% of its sales revenue – as Table 8 reveals for all three years at Crumbs:

Table 8: Excess of Operating Expenses over Gross Profit at Crumbs Bake Shop

Financial Data	2011	2012	2013
Operating Expenses as % of Sales	73.1%	80.2%	86.6%
Gross Profit (Margin) Percentage	57.5%	55.7%	54.0%
Excess of Operating Expenses % over Gross Profit %	15.6%	24.5%	32.6%

Learning takeaways: A healthy gross profit is a necessary, but not sufficient, condition for a firm to achieve a healthy net income. When operating expenses come close to (exceed) gross profit, the result will be low positive (or negative) net income.

Follow-up discussion with students: Crumbs, which had been valued at $66 million when it went public in 2011, was bought back by its founders in 2023 for $300, 0.00045% of that original valuation (Fickenscher, 2023). The $300 they paid is the fee charged by the U.S. Patent and Trademark Office to purchase an abandoned brand.

Firms in such fields as software development, investment banking, and biotechnology also regularly achieve very high gross profit percentages with very little inventories. However, among retailers, restaurants and bakeries stand out (Bennett, 2026).

3. What Caused Such Dramatic Changes in Two Firms' Sources and Uses of Cash?

Suggested Answers:

1. The event was the COVID-19 pandemic, which became prominent in early 2020. In this exercise, Year X was 2019 and Year X+1 was 2020. COVID understandably created anxiety about traveling and shopping in person.

2. Delta Airlines was the service firm highlighted in Table 3 -- its passenger revenue declined by 70% in 2020, compared to a 6% increase during 2019 (Delta, 2021). The restaurant industry was also hard hit. In expectation of sales declines expected during COVID, the stock of DineEquity (Applebee's and IHOP) plunged 32% on March 12, 2020 (Gelski, 2020).

3. Wayfair, an online merchant of furniture and home décor items, was the retailer highlighted in Table 3 -- its sales received a large boost from its exclusive online presence. Sales grew by 55% in 2020, compared to a 35% growth rate in 2019 (Wayfair, 2021).

Learning takeaways: The financial effects of a major exogenous event are often evidenced by year-to-year comparisons of a firm's cash flows from operating vs. financing activities. When net cash flows are abundant from operations, the firm can place less reliance on cash from financing and perhaps even reduce its existing financing. When operations provide less cash or even use large cash amounts, increased financing must make up the slack. At Delta and Wayfair, the enormity of the shifts in funds provided by operating vs. financing activities were readily apparent from reference to their statements of cash flows.

Follow-up discussion with students: Nordstrom, the department store, saw sales fall to $14.1 billion in 2020, compared to a pre-COVID estimate of $17.1 billion for that year (Global Data, 2020). On the other hand, Amazon's sales grew

by 41% during 2020 as consumers accelerated their move to online shopping during and after lockdowns (Amazon, 2021).

4. Which Quarter Was the Busiest?

Suggested Answers:

1. A quarter with fewer sales per week would, nevertheless, have impressive total sales if additional weeks were added to it. In 2005 and earlier years, Panera chose to divide its year into quarters of uneven length, turning Quarter 1 into what has been referred to as a supersized quarter (Fahey, 2017). In Panera's case, Quarter 1 was supersized with 16 weeks, while the three remaining quarters had 12 weeks each. Notice that 16 + 12 + 12 + 12 not only equals 52, but, where important to a firm, better syncs its internal and external reporting. Each quarter can now consist of an even number of 4-week internal reporting periods, something not possible with 13-week quarters.

2. When one compares Panera with peers who reported using quarters of even length, Panera's sales would appear to have peaked, uniquely, in Quarter 1. However, this need not indicate that its actual sales distribution during 2005 differed from that of its competitors who reported with even quarters.

3. When firms with uneven quarters present their quarterly results, they should *prominently note* the number of weeks contained in each quarter. They also should remind statement users that the firm's results would have differed had they used even quarters and, as a result, are not comparable with firms that do follow a 13-13-13-13-week pattern.

4. Beginning in 2006, Panera shifted its quarterly reporting to four periods of 13 weeks each. No reason was given for this change. Sales were apparently fairly constant from week to week during the 16-week Quarter 1 it had employed in 2005. After removing 18.8% of the weeks from Quarter 1 when it made the change (3 of 16 weeks), it shifted 19% of its sales to Quarters 2-4.

Learning takeaways: One should not assume that all reported business quarters consist of thirteen weeks. Before the true intra-year pattern of sales can be ascertained and analyzed for a firm, it must be determined whether or not all of its quarters were of equal length. Such a determination is also vital before inter-company comparisons can be made.

Follow-up discussion with students: As noted above, insight into how different the 2005 data would have been had the firm used even quarters was provided in Panera's 2006 10-K, where the 2005 year was presented for comparison with the 2006 data *after* being restated to conform to Panera's new 13-13-13-13-week pattern. Of course, knowledge of the extent to which its supersized quarter modified its quarterly sales distribution could only have been approximated if Panera had elected to continue in a supersized-quarter mode.

The distribution of annual sales by quarter, such as was shown for Panera in Table 4, was a reporting requirement in *Firm's 10-Ks* only through 2020. As of 2021, the SEC allowed firms to omit such disclosures (in most cases) from their 10-Ks (EY, 2021). Gathering such data has since involved referencing a firm's 10-Qs for Quarters 1, 2, and 3 (there is no 10-Q for Quarter 4) and then for Quarter 4 subtracting the total sales for Quarters 1-3 from the annual sales reported in the firm's 10-K. But at least one could find such timely data somewhere, albeit with a little more effort. Even that might not be possible in the future, as the SEC in May 2026 proposed that firms could *elect* to replace their quarterly reports with a new Form 10-S, to be filed semiannually (SEC, 2026). However, should this proposal be adopted, firms might continue to feel incentivized to make quarterly data available for stakeholders seeking timely data.

5. A Perfect Merger?

Suggested Answers:

1. Differences in the data suggest that Target chose to include distribution costs within its cost of goods sold while Kohl's included them within its operating expenses.

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2. For 16.6% to be a realistic left-over figure for the merged firm, it would have to have been the case that neither had any distribution costs – but those costs do exist and need to be placed somewhere on the income statement. A gross profit percentage around 5% might be attainable if the retailers were to merge.

3. Firms should be urged, or perhaps even required, to specify which costs they include within cost of goods sold and which they include within operating expenses. Some firms include the following caution in the notes to their financial statements: "The classification of these expenses varies across the retail industry." Although better than nothing, such a statement merely informs financial-statement users that what they are about to examine may not be comparable among firms. A vast improvement would be the type of exhibit that Target includes in each of its 10-Ks. An abbreviated version of that exhibit appears below in Table 9 (Target, 2025).

Table 9: Components of Cost of Goods Sold vs. Operating Expenses at Target

Included within Cost of Sales	Included within Operating Expenses
Merchandise Costs	Compensation and Benefit Costs for Stores and Headquarters
Import Costs	Occupancy and Operating Costs of Stores and Headquarters
Freight Expenses	Advertising Costs
Markdowns and Inventory Shrink	Credit Card and Servicing Expenses
Supply Chain and Digital Fulfillment Costs	Litigation Costs

Learning takeaways: Before analyzing and interpreting a firm's gross-profit percentage, the analyst must heed the same advice that applies to sporting events: You cannot interpret the score unless you first know the rules under which the game was played. The gross-profit percentage achieved by a firm and knowledge of how it compares to those of its competitors is of *paramount interest* to analysts, so extreme caution is needed when one is confronted with firms that have classified their costs differently.

Follow-up discussion with students: Other peers that choose to classify costs differently include TJX (more in cost of goods sold than Burlington Stores), American Eagle Outfitters (more in cost of goods sold than Abercrombie), Foot Locker (more in cost of goods sold than Genesco) and ULTA (more in cost of goods sold than Sally Beauty). The four firms that included distribution and occupancy costs in their cost of goods sold reported gross profit percentages that ranged from 28.5% to 39.1%, compared to a range of 39.8% to 62.9% for those with a narrower definition of cost of goods sold (Gosman, Gazi, and Lind, 2024).

6. How Did Returns on Stockholders' Equity Get So High?
Suggested Answers:

1. One cannot compute a percentage when the denominator is not positive. Therefore, it was negative stockholders' equity that precluded calculation of a ROSE for Colgate from 2015-2018.

2. To compute to an enormous ROSE, the firm most likely would have had positive, but very low, stockholders' equity.

3. It was not Colgate's results of operations that produced its low stockholders' equity, because its retained earnings were positive (and increasing) throughout the period, as shown in Table 6. It's most likely that like many firms, Colgate engaged in an aggressive stock buyback program. The cost of these holdings, when subtracted from the firm's paid-in capital and retained earnings, left a stockholders' equity balance that was negative from 2015-2018 and positive, but very low, in 2014 and from 2019-2024.

4. When one looks at a return measure, there can be a tendency to focus on the numerator. This is okay when one is examining the return on sales, for it is difficult for a firm to have impressive profits without having very respectable sales. But an impressively appearing ROSE can occur simply when that ratio's denominator, the firm's stockholders' equity, has been reduced to a very low positive number by negative retained earnings

and/or large treasury stock holdings. Therefore, extremely impressive earning power could be absent even in the presence of a huge ROSE.

Learning takeaways: A spectacular return on stockholders' equity is more likely to result from a very low, but positive, stockholders' equity number than from a very high net income number. One cannot characterize Fortune's ROSE calculations as inaccurate because they do come from data contained in audited financial statements. Nevertheless, they must be viewed with caution and might not be reason to bring out the champagne.

Follow-up discussion with students: During 2024, Colgate's stockholders' equity amount was the 30th lowest among the F500 (Fortune, 2025). The firm's holdings of Treasury Shares, which rose from $16.9 billion in 2014 to $27.4 billion in 2024, was the contributing factor (Colgate-Palmolive, 2015 and 2025). Colgate's return on sales of 14.4% in 2024 ranked 122nd among the F500 (Fortune, 2025). Thus, 121 firms ranked higher than Colgate on return on sales but none came close to its 1,363% ROSE.

7. Why Are There Multiple Amounts for the Accounts Receivable and Inventory Changes?

Suggested Answers:

1. The cash paid in 2024 when Home Depot acquired SRS would be listed in the investing activities section of the statement of cash flows. The amount listed would include the portion of the purchase price that was paid for SRS's receivables and inventory.

2. Receivables and inventory acquired in the SRS acquisition would affect the balance-sheet changes in those accounts for 2024, but would not be relevant when measuring changes that occurred in receivables due to differences between collections on customers' accounts and their credit purchases or differences between the firm's purchases and its cost of goods sold. Differences in operating accounts for such non-operating events as acquisitions and divestitures are not shown in the operating activities section; to do so would be to double-count them for they are properly reflected among the investing activities.

3. Where changes in accounts receivable and inventories are reported on a statement of cash flows, the firm could note that "changes in operating assets and liabilities are "*net of acquisitions and divestitures*."

Learning takeaways: Operating accounts such as accounts receivable and inventory will always change in amount during the year because of business dealings with customers and suppliers. But changes will also occur when the firm has engaged in acquisitions and/or divestitures. Because these investing/disinvesting activities occur regularly at many firms, amounts shown for changes in accounts receivable and inventory in the operating activities section of the statement of cash flows will often differ from changes reported on the firm's comparative balance sheet.

Follow-up discussion with students: In a note to its financial statements, Home Depot disclosed how it allocated the $18 billion it paid for SRS (Home Depot, 2025). Amounts paid to SRS for receivables and inventory were $1.8 billion and $2.0 billion, respectively. Notice that these amounts in large part explain why the changes on Home Depot's comparative balance sheet were each over $1.7 billion higher than the changes reported on the statement of cash flows (as shown in Table 7). Other factors such as foreign currency translations and assets held for sale accounted for the remaining differences.

Divergence between the change amounts on a firm's comparative balance sheet and on its statement of cash flows is the norm for large firms, who regularly make acquisitions and divestitures. The authors examined inventory-change amounts on the financial statements of one hundred retailers and consumer goods manufacturers included in the Fortune 500 for 2024. Change amounts for inventory were identical on the comparative balance sheet and statement of cash flows for only 15% of those firms. In thirteen instances, inventory changes *for the same year* were positive on one financial statement while negative on the other financial statement. Among firms examined, twenty-nine alerted readers that operating-account changes on their statements of cash flows were "net of acquisitions and divestitures."

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From Elective to Essential: Designing an Accessible Data Analytics Course for All Business Students

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ABSTRACT

As data continues to inform business decision-making, business schools are facing growing pressure to ensure that all students, not just those pursuing analytics-related careers, develop meaningful data literacy. This paper describes the redesign of an introductory-level course in analytics, transitioning it from a course that initially served a self-selected group of Data Analytics minors to a required course in the undergraduate business core. The redesign shifted from a modeling-intensive course to a broad survey of the analytics lifecycle, encompassing key topics such as data preparation, data ethics, modeling, visualization, and communication of results. To improve accessibility for a diverse business student population, the course reduced barriers associated with programming requirements and deep mathematical theory, while still maintaining rigor. The revised course incorporates industry software tools such as Microsoft Excel, Microsoft Power BI, and SAS, allowing students to engage at a practical level. Early evidence from pre- and post-surveys suggests that students are strengthening self-perceptions while developing stronger conceptual understandings of analytical processes and abilities to interpret results and communicate them with stakeholders. The findings contribute to an ongoing discussion of how business schools can better prepare diverse student populations for a data-driven business world.

Keywords: Data analytics education, curriculum development, business core, data literacy, perceived value, perceived ability

INTRODUCTION

The field of data analytics has continued to see a growth in application across industries. What often started at institutions of higher education as learning outcomes for individual courses within quantitative majors and minors, data analytics skillsets have become essential for all students, especially within business programs (McClure & Sircar, 2008; Hardin et al., 2015; Stanton & Stanton, 2020; Munarriz & Rincón, 2025). This creates a unique challenge for the educators within these institutions: adapting courses and content previously designed for a specific student population to serve a much broader and more diverse audience.

In this paper, we discuss and explore the impact of the redesign of one such course at Stonehill College. MGT 201 – Introduction to Data Analytics originally served primarily as a course for students choosing to complete the minor in Data Analytics offered by the Meehan School of Business. However, in response to recent industry trends, a revision of the core courses for all majors within the School of Business resulted in this course becoming required in the business core.

Through the use of pre- and post-surveys of students enrolled in the redesigned MGT 201 course, we assessed its effectiveness at positively impacting students' perceived abilities and value of data analytics, as well as their awareness of ethical concerns, within the context of their business degrees and career goals.

PREVIOUS PEDAGOGICAL RESEARCH

Meeting Increased Demand for Data Literacy Among Business Students

In recent years, data literacy has grown in importance as an essential skillset for business graduates. The Association to Advance Collegiate Schools of Business (AACSB) has published several articles documenting the need for these skills (LeClair, 2024; Sisto, 2024). Additionally, the American Statistical Association (ASA), the international organization representing academic, government and industry practitioners of statistics and data science, noted that recent studies by PwC and Business-Higher Education Forum found that an estimated 70% of US business leaders were seeking data analytics skillsets in all of their job applicants in 2021 (ASA, 2021). As other studies have shown, while there continues to be specialized demand for depth of knowledge within specialized majors such as information

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systems and business analytics (Hardin et al., 2015; Stanton & Stanton, 2020), a more broad analytics foundation is becoming generally essential for all business majors (Munarriz & Rincón, 2025).

To meet these demands, previous research has been performed to explore best practices for incorporating data analytics concepts within business programs. Studies have explored trends in curricula and evaluated the effectiveness of pathways for multi-course business analytics programs (Carroll, 2023; Gorman & Klimberg, 2014; Burns & Sherman, 2022). Others have proposed the modification of information systems courses and programs to incorporate some analytics techniques (Chiang et al., 2012; Tiahrt, et al., 2022). Creatively, programs like PolyX at California State Polytechnic University have made use of workshops and extracurricular activities as a way to bridge the gap in students' analytics skillsets outside of the classroom (Kumar & Preiser-Houy, 2024).

However, these studies have focused on either multi-course programs within quantitative degrees and concentrations or external instruction. They do not examine the creation of a single course to address a more broad and non-quantitative audience. Many business curricula, like the core currently implemented at Stonehill College, simply do not have the room to incorporate multiple courses on this subject, and workshops do not offer enough time to cover the desired breadth of material, making the purposeful redesign of a single course a more effective solution.

Considerations When Teaching Quantitative Skills to Diverse Student Populations

There is well-documented historical bias along gender and ethnic identities when it comes to perceived ability within STEM-related fields (Wigfield & Cambria, 2010; Schau, 1995). A relationship between gender and anxiety around statistics was first captured by Roberts and Saxe (1982), and has since been described by multiple subsequent studies continuing to affirm greater reported anxiety and lack of confidence with regards to quantitative skillsets among female identified participants in varying statistics and mathematics course contexts (Benson, 1989; Rubinsten et al., 2012; Flanagan & Einarson, 2017; Miner et al., 2017). The same is true for a number of studies on underrepresented racial and ethnic identities (Onwuegbuzie, 1999; Miner et al., 2017; Weston, et al., 2019). Many of these studies have also identified gaps in terms of the perceived value of quantitative skills for female or minority participants.

While these studies have explored student perceptions across STEM fields and introductory mathematics and statistics courses, little work has been done to determine the extent to which these patterns continue to propagate within other quantitatively aligned courses, especially within business programs. This study seeks to address this gap by examining the presence of gender-related differences in reported perceived abilities within and value of quantitative skills, while exploring the effectiveness of the modified course to address these differences.

COURSE REDESIGN

When MGT 201 became a required course in the redesigned business core in 2023, the context for the course changed dramatically. The audience would no longer be a group of self-selected analytics minors, but was now required for every business student, including majors in management, marketing, finance, accounting, sport management, and others, many of whom did not see themselves as technically oriented or particularly interested in analytics.

Prior Course Structure

MGT 201 – Introduction to Data Analytics was originally developed in 2017 as the foundational course for students pursuing a minor in Data Analytics. At the time, that audience was highly self-selected. Students enrolled because they wanted depth in analytics, and the course structure reflected this audience.

In practice, the course functioned as an introduction to predictive modeling. Students worked extensively with software tools such as SAS Enterprise Miner, a comprehensive data mining tool. After an initial focus on data preparation, the semester moved into modeling techniques such as decision trees, regression, neural networks, clustering, ensemble models, and model assessment. Students completed milestone-based homework assignments and three case-study examinations that required theoretical knowledge and a full end-to-end analysis of a data set.

While the course was thorough and rigorous, and students learned a great deal about predictive modeling, it was misaligned for a general audience. Visualization received little sustained attention, and data ethics appeared as a discrete discussion rather than a recurring theme. Lastly, much of the intellectual energy of the course was concentrated on increasingly complex modeling techniques.

Rationale for Redesign

The shift from elective minor course to required business core course forced an essential question: What does every business student need to learn in an introductory analytics course?

Reports from the McKinsey Global Institute have emphasized the growing need for data literacy and analytical reasoning across managerial roles, not only in specialized data science positions (McKinsey Global Institute, 2018; 2021). The World Economic Forum has repeatedly identified analytical thinking and complex problem solving among the most critical skills for the future workforce (World Economic Forum, 2020; 2023). Employer surveys conducted by the National Association of Colleges and Employers similarly rank critical thinking and the ability to analyze and interpret data as central career-readiness competencies. In short, data analytics has gone from a specialized skill to a necessary competency of college graduates.

These external signals reinforced the need for the course to shift from depth to breadth. The original course functioned, in practice, as an introduction to data mining. The redesigned course instead aims to provide a comprehensive introduction to the analytics lifecycle, giving balanced attention to five core domains: data preparation, data ethics, modeling, data visualization, and communication of results. Because the course now serves students from every business major, the redesign also intentionally reduced barriers created by heavy programming requirements or deep mathematical derivations. Instead, the emphasis shifted toward conceptual understanding, interpretation, and practical decision-making with data.

This zooming out in the curriculum required making tradeoffs. Advanced modeling topics such as neural networks, ensemble techniques, and some forms of pattern discovery, were moved into an upper-level data mining course in the Business Analytics major. That decision was intentional, allowing MGT 201 to function as a true introduction rather than a compressed survey of advanced predictive methods. The learning outcomes for MGT 201 were revised to ensure that students become comfortable navigating datasets, aware of common pitfalls, capable of interpreting analytical outputs, and mindful of ethical implications.

Structural and Pedagogical Changes

The most visible change between the two versions of the course was the redistribution of content across the semester. Early weeks now focus on what data is, how it is structured, how it can be flawed, and how it should be cleaned and prepared. Students spend significant time in Microsoft Excel working through data issues and asking questions before building models. Descriptive analysis and visualization receive attention throughout the course, including dashboard development and discussion of how visual choices shape how people understand data.

Modeling remains part of the course, but it is streamlined. Students learn regression and decision trees with an emphasis on understanding what models do, when each one is appropriate, and how to interpret results. The mathematical depth has been intentionally reduced, but the conceptual expectations remain high. This approach reflects a common challenge in analytics education: designing courses that remain academically rigorous while still being accessible to students from diverse quantitative backgrounds. Prior work notes that analytics and data mining courses aimed at business students must be sensitive to the technical and theoretical difficulty of the subject and often benefit from emphasizing the understanding of concepts and applications of these concepts over algorithmic detail (Wu et al., 2015).

Course assessments changed as well. The number of high-stakes modeling exams was reduced. Structured homework assignments now provide more frequent, lower-stakes opportunities to practice. The team project now emphasizes communication, and students must explain their findings clearly, not simply produce output from a software package.

Perhaps one of the most significant shifts in content was making data ethics a visible part of the course rather than a short standalone discussion. As analytics becomes embedded in everyday decision-making, issues such as bias, privacy, and responsible data use are no longer abstract concerns. They are part of real business practice. We wanted students to understand early on that working with data carries consequences. Learning how to analyze data responsibly is just as important as learning how to analyze it at all. Lastly, communication and interpretation of analytical results were also intentionally amplified in the course, with its final module now focused on writing analysis reports and stakeholder communication.

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Technology and Platform Decisions
Technology choices were closely tied to these pedagogical shifts. The earlier version relied almost exclusively on SAS Enterprise Miner. This platform is powerful, but it reinforces a modeling-first mindset. The redesigned course uses Microsoft Excel for data cleaning and descriptive analysis, Microsoft Power BI for visualization and dashboards, and SAS Viya for modeling. All tools are browser-based or widely accessible, and all rely on point-and-click interfaces as opposed to programming.

As previously discussed, a deliberate decision was made not to include coding in MGT 201. Studies have found that student success in analytics-oriented courses is heavily linked to coding confidence and prior experience (Wu et al., 2015; Rosenbaum & Dierker, 2024). Programming courses exist elsewhere in the curriculum for students pursuing deeper analytics study (e.g., Data Analytics minors and Business Analytics majors). For a required business core course, reducing programming and mathematical barriers allows students to focus on practicing analytical reasoning. At the same time, the tools are professionally relevant. Microsoft Excel and Power BI are widely used in industry. SAS Viya aligns with our institutional partnerships while providing a modern, accessible interface.

Table 1: Comparison of the Original and Redesigned Versions of MGT 201

Dimension	Original Course (2017-2024)	Redesigned Course (2026-)
Intended Audience	Data Analytics minor students	All business majors
Curricular Role	Foundation for analytics specialization	Required business core course
Primary Goal	Develop predictive modeling skills	Develop data literacy
Course Scope	Depth in data mining and modeling	Breadth across the analytics lifecycle
Major Topics	Data preparation, regression, decision trees, neural networks, clustering, ensemble models	Data preparation, data ethics, visualization, regression, decision trees, communication
Data Ethics	Standalone discussion	Integrated throughout the course
Data Visualization	Limited emphasis	Dedicated modules and dashboard development
Technology	SAS Enterprise Guide, SAS Enterprise Miner	Microsoft Excel, Microsoft Power BI, SAS Viya
Programming	None	None
Mathematical Emphasis	Moderate to high	Reduced emphasis on mathematical theory
Assessment Structure	Three exams, milestone assignments, final project	Two exams, structured homework, communication-focused project
Pedagogical Focus	Modeling techniques and prediction	Interpretation, communication, and responsible use of data

Summary of the Shift
The redesign of MGT 201 reflects a move from specialization to shared literacy. The prior version was deep and modeling-intensive, well suited for analytics minors. The redesigned version is broader and intentionally structured to serve all business students. It prioritizes data literacy, ethical awareness, interpretive skills, and communication. Students still learn what models are and how they work. But more importantly, they leave the course more comfortable with data, and more aware of both its power and its risks.

RESEARCH DESIGN

The redesigned version of MGT 201 course was launched in the Fall 2025 semester, for which there were two sections offered. To assess the impact of the course on student learning and self-perception, students were invited to participate in anonymous pre- and post-surveys, which are described below. Participation was optional for all 49 enrolled students and was clearly indicated to have no connection to course grades. The surveys were distributed within the first and last weeks of the fall semester. Individual responses were only viewed by authors who were not serving as instructors for any section of the course to ensure anonymity. As part of the surveys, participants were given instructions on how to create a 4-character Participant-Generated ID. These were then later used to match the pre- and post-survey responses for consenting participants.

Survey Design

The pre- and post-surveys employed both Likert and open response questions to capture student experiences and perceptions, focusing on three outcome metrics: Perceived Value, Perceived Ability and Ethical Awareness. Questions pertaining to students' Perceived Value of Data Analytics were informed by best practices established by Wigfield and Cambria (2010). Measures of students' Perceived Ability were adapted from previous work on capturing this metric within statistics courses (Schau et al., 1995). Table 1 displays the specific questions contained within the surveys. These were followed by questions to capture demographic and course section data for each participant.

Of the responses collected from the two sections of the course, 25 pre- and post-responses were successfully linked using the Participant-Generated IDs. Of these, 6 identified as female and 19 as male. Consequently, it was difficult to find any significant signal regarding the relationship between student gender and self-perceptions (discussed in more detail below). However, looking at the results generally, we identified several significant trends regarding student perceptions, and there appeared to be note-worthy patterns with regards to students' gender, particularly within the qualitative results.

QUANTITATIVE RESULTS

We begin by examining the data collected from the Likert-based quantitative measures for the three outcome metrics, Perceived Ability, Perceived Value and Ethical Awareness. We first explore trends across all students, and then later consider patterns that emerged when taking the students' gender into account.

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Table 2: Survey Questions and Structure

Question & Response Type	Sub Questions	Corresponding Outcome Metric
Q1. Strength of Agreement (Please indicate how strongly you agree or disagree with the following statements:) *Likert: 1: Agree 2: Somewhat agree 3: Neither agree nor disagree 4: Somewhat disagree 5: Disagree 6: Unable to answer*	Q1.1 Useful Tool. *Data analytics is a useful tool for business decision making*	Perceived Value
	Q1.2 Data Quality. *Data quality is an important factor for business decision making*	Ethical Awareness
	Q1.3 Data Ethics. *There are ethical concerns associated with the collection, analysis, and use of data in general*	Ethical Awareness
	Q1.4 Business Ethics. *There are ethical concerns associated with the use of data and analytics in business*	Ethical Awareness
	Q1.5 Important Skillset. *Data analytics literacy is an important skillset for every business student*	Perceived Value
	Q1.6 Career Goals. *Data analytics literacy is a skillset that would help me achieve my personal career goals*	Perceived Value
	Q1.7 Develop Skills. *This course (MGT-201) will help/helped me to develop skills needed by professionals in this field*	Perceived Value
Q2. Defining Success *Open response*	*How would you personally define "success" when it comes to completing this course?*	Perceived Value
Q3. Confidence in Abilities (For the following statements, please indicate your confidence in your ability to…) *Likert: 1: Confident 2: Somewhat confident 3: Neither confident nor unconfident 4: Somewhat unconfident 5: Unconfident 6: Unable to answer*	Q3.1 Translate Question. *Translate a business decision question into a data analytics task*	Perceived Ability
	Q3.2 Make Decision. *Make business decisions based on data*	Perceived Ability
	Q3.3 Perform Analysis. *Perform data analysis tasks*	Perceived Ability
	Q3.4 Interpret Results. *Understand and interpret the results of data analysis*	Perceived Ability
	Q3.5 Judge Quality. *Judge the quality of a dataset*	Perceived Ability
	Q3.6 Identify Tool. *Identify the appropriate tool for a given data analysis task*	Perceived Ability
	Q3.7 Identify Ethics. *Identify ethical issues related to a data analysis task*	Ethical Awareness
	Q3.8 Complete Course. *Successfully complete this course*	Perceived Ability
	Q3.9 Career Goals. *Use the content of this course (MGT-201) to facilitate your career goals*	Perceived Value
Q4. Greatest Strengths *Open Response*	Q4. Pre. *What are your greatest strengths that you believe will contribute to your success in this course?*	Perceived Ability
	Q4. Post. *Thinking back to your survey response prior to taking this course, were your self-identified strengths as useful as you anticipated?*	Perceived Ability
Q5. Greatest Concerns *Open Response*	Q5. Pre. *What are your greatest concerns related to your success in this course?*	Perceived Ability
	Q5. Post. *Thinking back to your survey response prior to taking this course, were your greatest concerns related to your success in this course warranted?*	Perceived Ability
Q6. Self Reflection *Open Response*	*What is one thing you wish you could have told your past self prior to taking this course?*	Perceived Ability

Response formats and question alignments with metric categories are shown. Open response questions reflect changes in phrasing based on whether they were included in the pre- or post-survey.

General Trends Across Quantitative Measures

Table 3 contains the results of paired t-tests for the linked pre- and post-survey responses. Given the issue of multiple testing, significant results at a 0.01 level were identified using a Bonferroni corrected significance level of 0.003. The distributions of the differences between the pre-survey and post-survey scores are shown in Figure 1.

Every measure captured shows an improvement in the mean score, with the distributions of scores showing gains for nearly all students. We observe statistically significant improvement for the mean of every measure of students' Perceived Ability, indicating that the course appears to be effectively facilitating skill development across all stages of the data analytics life cycle, including both hard skills (technical execution) and soft skills (identifying appropriate tool for a task, interpretation of results). Additionally, we see significant improvement in the perceived ability-focused Ethical Awareness question (confidence in ability to identify ethical issues related to a data analysis task), again indicating skill development for students enrolled in the redesigned course.

Table 3: Paired t-test Results for Linked Pre- and Post-Survey Responses

Question	Sub Questions	Corresponding Outcome Metric	Mean of pre-survey responses	Mean of post-survey responses	t-value	p-value
Q1. Strength of Agreement	Q1.1 Useful Tool	Perceived Value	1.12	1	-1.00	0.3270
	Q1.2 Data Quality	Ethical Awareness	1.12	1	-1.81	0.0830
	Q1.3 Data Ethics	Ethical Awareness	1.64	1.2	-1.75	0.0860
	Q1.4 Business Ethics	Ethical Awareness	1.92	1.36	-1.95	0.0576
	Q1.5 Important Skillset	Perceived Value	1.44	1.16	-1.87	0.0698
	Q1.6 Career Goals	Perceived Value	1.52	1.16	-1.74	0.0899
	Q1.7 Develop Skills	Perceived Value	1.32	1.12	-1.31	0.1990
Q3. Confidence in Abilities	Q3.1 Translate Question	Perceived Ability	3.16	1.44	-5.87	<0.0001*
	Q3.2 Make Decision	Perceived Ability	2.24	1.08	-4.59	<0.0001*
	Q3.3 Perform Analysis	Perceived Ability	3.32	1.32	-6.74	<0.0001*
	Q3.4 Interpret Results	Perceived Ability	2.60	1.28	-4.82	<0.0001*
	Q3.5 Judge Quality	Perceived Ability	2.88	1.40	-5.31	<0.0001*
	Q3.6 Identify Tool	Perceived Ability	3.6	1.36	-7.63	<0.0001*
	Q3.7 Identify Ethics	Ethical Awareness	2.76	1.36	-4.74	<0.0001*
	Q3.9 Career Goals	Perceived Value	1.72	1.28	-2.11	0.0412

* Indicates significance at the 0.01 level after Bonferroni correction for multiple testing.

The measures for which there was no statistically significant improvement, however, do not indicate a failure of the course design. Rather, looking at the pre-survey means, we observe that these measures already had strong scores before students had taken the course. This includes every measure of the Perceived Value metric, indicating that for the field of Data Analytics, students enrolled in Stonehill College's Meehan School of Business already have a strong perception of the value of data analytics skillsets—both with respect to their value within the business environment and in achieving their own personal and career goals—and believe that the course's content is well aligned with developing these skills. This provides evidence that Perceived Value may not be as large of a concern for data analytics courses within business curricula as it is for other quantitative subjects, such as statistics.

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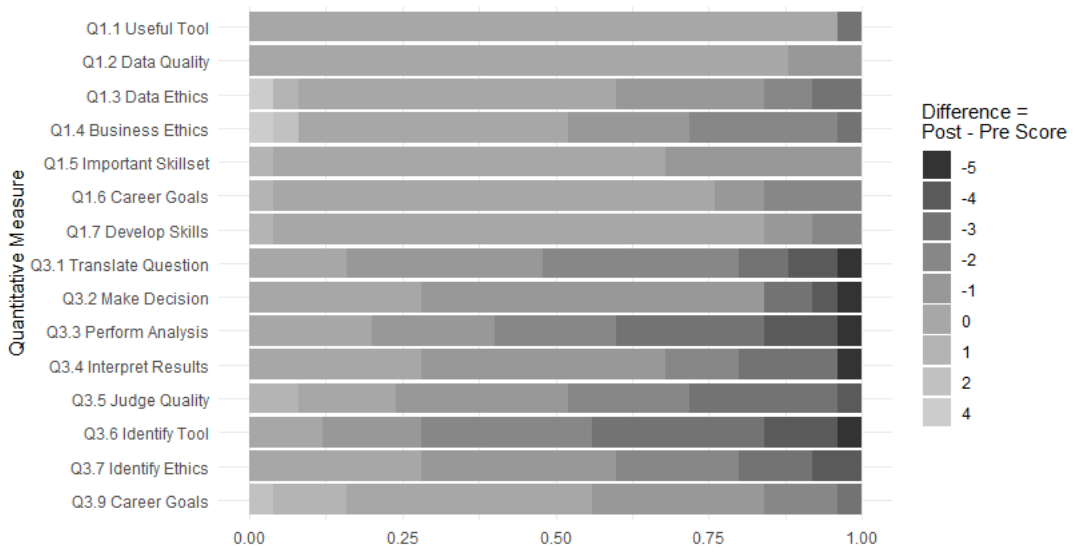
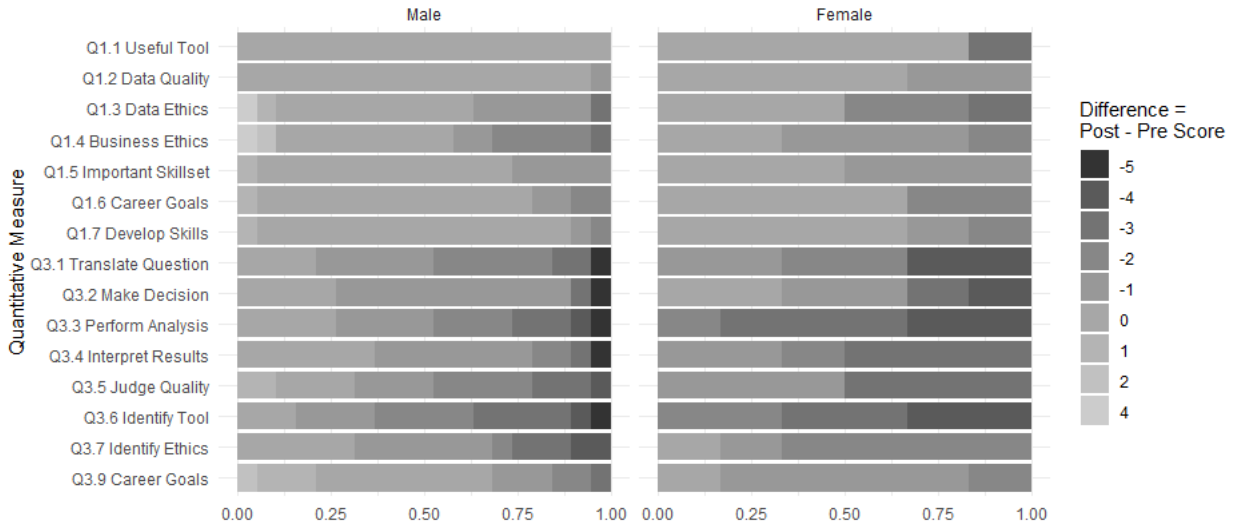
Figure 1: Improvement of Quantitative Measures from Pre-Survey to Post-Survey Response



The greatest gains are observed across the distributions of measures of Perceived Ability.

We see a similar trend with three of the four Ethical Awareness measures. While there is non-statistically significant improvement in the mean scores for these questions, the generally strong scores in the pre-survey may be a reflection of the strong emphasis of ethics throughout both the business and general education core curricula at Stonehill, implying that students already have an awareness that ethical concerns may exist within the field of data analytics. As indicated by the significance of the skill-oriented Ethical Awareness measure, students were still in need of developing an understanding of ethical issues within a data analytics context.

Figure 2: Visual Comparison of the Score Improvement for Male vs. Female Participants



Distributions of measure scores indicate larger improvements generally for female students, regardless of the metric being captured.

Gender Differences within Quantitative Measures

When considering the impact that gender had on student responses, while the resulting dataset was too small to capture statistically significant differences, examining the results visually (see Figure 2), there are some interesting trends.

Almost all measures appear to indicate improvements for female students, while their male counterparts show worsened scores in some cases. Notably, female participants also show larger gains across most measures than their male colleagues, regardless of the metric being captured.

Table 3 shows the mean scores for the pre and post survey responses by gender. While most measures show worse mean scores for the pre-survey responses among the female participants relative to the males, they show comparable scores to their male counterparts within the post-survey. This indicates that while there does appear to be a potential gender disparity prior to the course with regards to both perceived ability within and value of data analytics, any existing gender-based gap seems to be effectively addressed throughout the course.

Table 4: Comparison of Mean Responses for Female vs. Male Participants

Question	Sub Questions	Corresponding Outcome Metric	Female Responses		Male Responses	
			Pre-survey Mean	Post-survey Mean	Pre-survey Mean	Post-survey Mean
Q1. Strength of Agreement	Q1.1 Useful Tool	Perceived Value	1.5	1.00	1.00	1.00
	Q1.2 Data Quality	Ethical Awareness	1.33	1.00	1.05	1.00
	Q1.3 Data Ethics	Ethical Awareness	2.17	1.00	1.47	1.26
	Q1.4 Business Ethics	Ethical Awareness	2.00	1.17	1.89	1.42
	Q1.5 Important Skillset	Perceived Value	1.67	1.17	1.37	1.16
	Q1.6 Career Goals	Perceived Value	1.83	1.17	1.42	1.16
	Q1.7 Develop Skills	Perceived Value	1.50	1.00	1.26	1.16
Q3. Confidence in Abilities	Q3.1 Translate Question	Perceived Ability	3.83	1.50	2.95	1.42
	Q3.2 Make Decision	Perceived Ability	2.83	1.33	2.05	1.00
	Q3.3 Perform Analysis	Perceived Ability	4.33	1.17	3.00	1.37
	Q3.4 Interpret Results	Perceived Ability	3.50	1.33	2.32	1.26
	Q3.5 Judge Quality	Perceived Ability	3.33	1.33	2.74	1.42
	Q3.6 Identify Tool	Perceived Ability	4.33	1.33	3.37	1.37
	Q3.7 Identify Ethics	Ethical Awareness	2.83	1.33	2.74	1.37
	Q3.9 Career Goals	Perceived Value	2.17	1.17	1.58	1.32

Post-score means show that the larger gap in self-assessment across most metrics for female students is bridged by the conclusion of the course.

QUALITATIVE RESULTS

The qualitative responses from the open-ended survey questions (Q2, Q4, Q5, and Q6) reveal a significant evolution in student mindset of the participants, showing a shift from technical apprehension to applied confidence. This transition is central to the success of the course redesign, as it demonstrates that it may be possible for a mandatory technical course to maintain rigor while remaining accessible to a diverse student body. Initial insight discovery was facilitated through the application of the Gemini large language model to the qualitative dataset. Gemini was provided with the purpose of the study, instructed to take on the role of a qualitative analysis expert, and prompted to review the anonymized pre- and post-survey data to identify any general patterns in participant responses. Subsequently, a rigorous validation and verification process was conducted to explore the identified trends, and to ensure the accuracy and analytical integrity of the findings. Below, we begin with a synthesis of the collective student testimonies, followed by a comparative look at how male and female participants navigated the course transition.

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Shift in Student Mindset

The student pre- and post-survey comments for Q2 demonstrate a shift in mindset for participants from what we have characterized as Procedural Success to Conceptual Mastery. Table 5 shows the criteria used to characterize these two mindsets when analyzing how students defined success in the pre- and post-surveys. Examining responses from the pre-survey, definitions of success focused heavily on transactional outcomes, such as "getting a B+ or higher" (CC26) or "passing" (LDR01). As shown in Figure 3, around 48% of students defined success through Procedural Success in the pre-survey, meaning they were primarily focused on grades, accuracy, and completion of the course requirements. Only 28% mentioned Conceptual Mastery themes like deep understanding or real-world application.

Table 5: Summarization of the Mindset Category Definitions for Responses to Q2

Mindset Category	Sub-Themes	Terms & Keywords used by students
Procedural Success	**Grade & Performance**	*grade, A, B+, score, GPA, pass, points, marks, finish, complete, requirements*
	Accuracy & Precision	*accurate, accuracy, results, 100%, correct, exact, error-free, data cleaning, validation*
	Task Completion	*assignments, exams, tests, projects, turn in, finish on time, deadline*
Conceptual Mastery	**Real-World Application**	*apply, application, real-world, business world, career, future, job, industry, professional, internship, scenario*
	Deep Understanding	*why, understand, understanding, insight, meaning, concept, knowledge, inner workings, logic, "the how"*
	Critical Thinking	*analyze, analyzing, interpretation, interpret, problem-solve, decision-making, synthesis, beneficial, valuable*
	Skill Acquisition	*skill, tool, ability, proficiency, implement, method, technique, software usage*

A more comprehensive look at the linguistic markers used to distinguish between a Procedural mindset and a Conceptual mindset in the student responses.

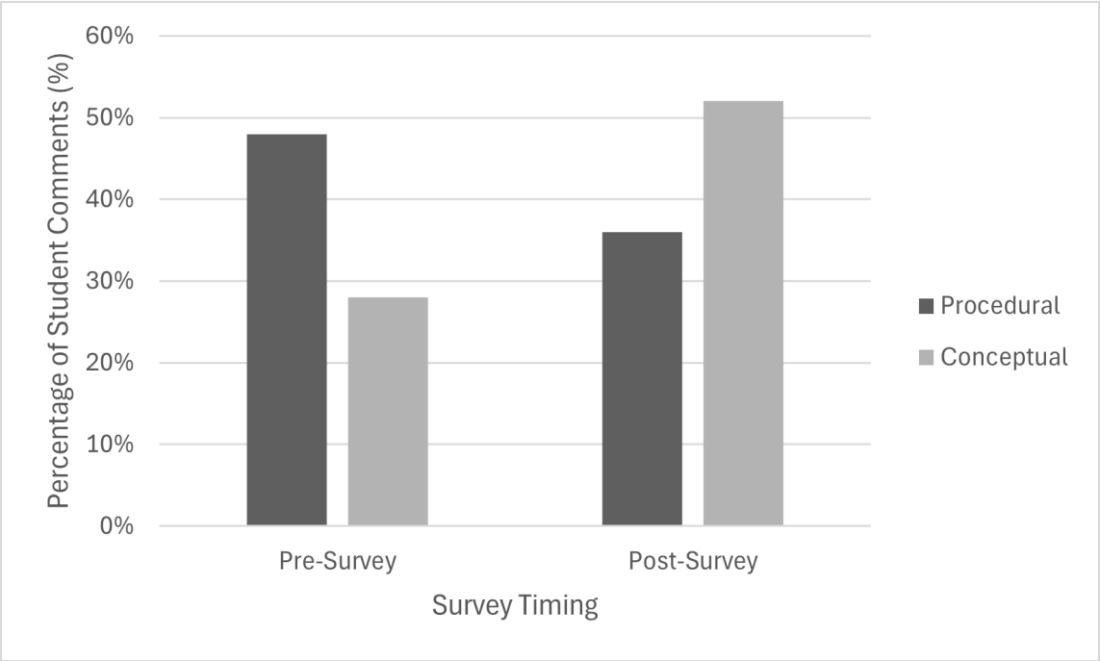
By the end of the semester, post-survey responses show that success was redefined for initial participants as mastering data analytics concepts. Student AB22, for example, transitioned from a focus on "100% Successful and accurate Data" to realizing that using "data analytics" can "improve company operations." Figure 3 shows that at the course's conclusion, Conceptual Mastery became the primary definition of success for 52% of the student participants, while procedural focus dropped to 36%. These students began defining success as the ability to generate insights, understand "the why" behind the data, and apply their skills to real-world business scenarios, with students emphasizing in their definitions of success outcomes such as "creating my own insights" and "understanding the inner workings" of analytics methods (FI11), and applying concepts from the course to "real world situations and scenarios in an effective and ethical way" (ZA07).

Examining the responses to Q5, which was included on the pre-survey and asked students to report their greatest concerns prior to taking the course, a dominant theme was anticipatory anxiety, particularly regarding specialized software (SAS Viya, Microsoft Power BI, and Tableau) and programming or coding tasks. Students frequently cited a lack of computer proficiency or mathematics anxiety as potential barriers. For example, one student (AB12) mentioned that "I am not the best with computers, and it takes me a bit to get adjusted to new software."

However, post-survey self-reflections (which were captured with Q5 and asked students whether concerns were "warranted") revealed a significant reduction in this anxiety. This qualitative shift directly mirrors the large quantitative gains observed in the Perceived Skill measures. The transition suggests that the curriculum successfully moved many initial student participants from a state of technical apprehension to confidence.

This was also reflected in the advice that many students chose to offer their past selves when answering Q6. Multiple students advised themselves not to stress, describing the course as "doable and manageable" (AW11). This appears to be tied to the support systems intentionally included within the redesigned course. Mention of step-by-step instructions and the availability of recorded lectures suggests that the delivery method was crucial in bridging the gap for students.

Figure 3: Percentage of Procedural vs. Conceptual Responses when Defining Success



This chart visualizes the fundamental shift in how students defined success before and after the course.

Impact on Diverse Student Experience

The open response questions also offer initial insight into the redesigned course's ability to reach the diverse range of interests and experiences among students enrolled, now that MGT 201 is a requirement for all business majors.

Students with no prior experience and anxiety about technical content, as noted in their responses to Q5, reported in the post-survey (Q6) that they were able to realize the broad application of data analytics across all business environments and that the course offered the opportunity to "learn programs that will be useful in a career" (AB12). Conversely, students who had previously taken analytics courses noted that the redesign still offered value, with DR20 stating "I relearned a lot of information and concepts but also learned new tools and techniques as well," suggesting that the course redesign struck a balance between accessibility and depth.

Across levels of prior experience, a recurring sentiment among participants appeared regarding its long-term value through statements such as "this course is worth it and important for my future in business" (AB05) and that they should have "take[n] an interest in the topic sooner" (PC18), providing preliminary indications of a high level of student engagement that persists even when analytics is outside of their primary major's focus.

Gender Differences within Qualitative Measures

We further explored the gendered nuances in student experiences within the MGT 201 redesign based on the qualitative responses. While both groups (19 males, 6 females) demonstrated a positive transition toward application-based success, preliminary results based on these limited responses indicate that their initial hurdles and reflective takeaways differed in nature.

While the six female students entered with higher levels of technology anxiety, their post-survey reflections were among the most enthusiastic, indicating that the course structure successfully dismantled the "scary" (HM16) reputation of data analytics. Male students, who entered with more confidence in their technical ability but perhaps less understanding of the course's purpose, left with a clear understanding of its "many applications" (CO26) and career importance.

Looking specifically at the pre-survey responses (captured in Table 6), these initial results indicate that female students expressed more imposter-syndrome related concerns, specifically questioning if their non-business backgrounds or perceived technical limitations would hinder them, which appears to reflect the trends seen in the Perceived Ability

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quantitative measures. Male students, conversely, viewed the challenges through a lens of task-specific difficulty rather than a fundamental mismatch with the course content.

Table 6: Comparison of Pre-Survey Expectations for Male vs. Female Students

Question	Male Students (n=19)	Female Students (n=6)
Q5. Primary Concerns	Focused on **specific technical barriers** (e.g., "advanced excel strategies," "new version of SAS") or self-management (procrastination).	Focused on **general aptitude and identity** (e.g., "not the best with computers," "not a business major," "fear of public speaking").
Q2. Success Metrics	Quantifiable and output-driven ("100% accurate data," "Getting a B+ or higher").	Interpretive and longitudinal ("Learning skills that stick with me," "where to go from the interpretation").

Differences within preliminary results reflect the tendency of female students to believe they are generally an ill-fit for the course, while male students focus on specific skill deficiencies that may hinder their performance.

Reviewing the post-survey responses, both genders exhibited the movement towards Conceptual Mastery in their definitions of success. Interesting differences emerge when looking specifically at responses to the self-reflection question (Q6). Female students tended to incorporate more affective-focused language when reflecting on the course, emphasizing themes of overcoming intimidation. One student (AW11) noted that the course became one of her "favorites" and urged her past self "not to stress," while HM16 concluded that it is "not a scary course." Another student (TA13) went as far as to tell herself to "give myself more credit in data analytics and my ability to analyze any given data." Conversely, male students' reflections tended to focus on the "value" and "utility" of the course for benefiting their professional goals rather than any emotional response. Student AB05 noted to his past-self that "this course is worth it and important for my future."

Both genders also mentioned the pedagogical design of the course in their responses to Q5 and Q6. The redesign's focus on structured support seemed to benefit both but was articulated differently. Male students specifically highlighted the course structure and resources as making their initial concerns unwarranted, with FI11 stating that the "diligent step-by-step nature of the course really helped me catch on and begin to understand." Female students highlighted the ability to "work hard to overcome" (AW11) their initial fears and that they were "able to understand and use the software required for the course" (HM16), suggesting that the redesign provided a safe environment for those who initially felt like outsiders to the data analytics field.

DISCUSSION

The redesign of MGT 201 appears to have successfully recalibrated student motivation. While students self-reported high scores on the quantitative measures of Perceived Value on the pre-survey, the qualitative results demonstrate improvement in terms of their own definitions of success expanding to capture mastery of data analytics skills. By moving the focus away from procedural compliance (grades and accuracy) toward conceptual utility (insights and application), the course fostered a sense of professional agency.

This is particularly evident in the software transition. As both the quantitative and qualitative results reflect, what began as a significant technical barrier in the pre-survey evolved into a manageable toolset by the post-survey, as students realized that technical complexity did not preclude functional business application. The redesigned course effectively serves a diverse student population with varying levels of technical comfort or anxiety.

While there were not enough responses to establish statistical significance, an examination of the mean scores for the quantitative measures indicates that the redesign was effective at improving initially lower Perceived Skill and Value scores for female students, getting them to be on par with their male colleagues by the course's conclusion. Preliminary results indicate that the redesign is particularly effective for female students and non-majors because it addresses the psychological barriers of entry into data science. By moving away from a purely technical minor-only focus to a broad business-core application, the course encourages diverse students to see themselves as capable data practitioners, regardless of their initial self-assessment and perceptions.

IMPLICATIONS FOR EDUCATORS

The redesign of MGT 201 offers several practical insights for business educators looking to incorporate analytics into an undergraduate core curriculum.

- A first course in analytics designed for a broad business student audience benefits from emphasizing the understanding of analytical concepts instead of deep technical or mathematical skills.
- Reducing the barriers of a programming requirement or advanced mathematical theory also makes analytics more accessible while keeping the course academically rigorous.
- Integrating multiple common software tools such as Microsoft Excel, Microsoft Power BI, and SAS can help students see how data analytics can be accomplished using platforms they will likely encounter in a professional setting.
- Intentionally incorporating topics such as data ethics and communication skills reinforces the fact that analytics is not solely a technical activity, but a powerful tool that can drive business decision making.

These course design choices may help other institutions seeking to add an analytics requirement into their business curriculum in effectively developing a course that serves business students from all disciplines.

CONCLUSIONS

As data increasingly shapes business decision-making, business schools are facing growing pressure to ensure that all graduates, not just those pursuing technical careers, develop meaningful data literacy skills. This paper described the redesign of MGT 201 – Introduction to Data Analytics as part of a broader business core revision. This redesign shifted the course from being a modeling-intensive elective for Data Analytics minors to a broader introduction to the analytics lifecycle appropriate for all business students. By emphasizing data preparation, visualization, basic modeling concepts, data ethics, and communication, while reducing the barriers created by programming and deep mathematical theory, the course aims to build confidence across a diverse student population in working with data and deriving insights.

The redesign reflects a broader educational goal: democratizing data analytics education so that students from all backgrounds can meaningfully engage and contribute. The early results suggest that students are developing stronger conceptual understanding and interpretive skills, while also gaining confidence that analytical work is more accessible than they may have initially thought. Future work will extend this study by examining how students from different demographic groups experience the course. In particular, additional analysis is needed to explore potential differences in outcomes across gender as well as racial and ethnic backgrounds. Although we found no statistically significant differences in the current study, continued data collection and further longitudinal analysis will allow for deeper investigation of how best to design inclusive and accessible analytics education for increasingly diverse student populations.

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A Study of Instructor Perceptual Changes: Pre, During and Post-COVID Perceptions

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ABSTRACT

Over the past decade, as part of an ongoing study of online versus face-to-face education, instructors at a Jesuit, Catholic University in the northeast were surveyed before (2017), during (2021) and after (2025) the Covid pandemic. With educational and technological improvements, an increase in instructor experience online and student perceptual changes over this timeframe, changes in instructor perceptions were expected. However, with the exception of time investment, this is not the case as results indicate that instructor perceptions have not changed with respect to individual and program factors. This paper presents the lack of change in instructor perceptions that may impact education going forward.

Keywords: instructor perspectives, online education, face-to-face education

INTRODUCTION

As education and technology evolve and online experiences increase, instructor and student perspectives of online and face-to-face (FTF) education may evolve too. Our past research on students' perceptions found that as students experience more online education, their perceptions changed (Fish & Snodgrass, 2014). What about instructor's perceptions? Do their perceptions change over time too? Our research during the pandemic indicated that instructor's perceptions on online versus FTF education had not changed. Given additional experience in designing and delivering online courses as well as technology changes, have instructors' perceptions changed? Little research has been done to examine instructors' perspectives on this issue (Shreaves et al., 2020). We have been following these changes for over a decade. The purpose of this article is to present instructors' perceptions on individual and program factors before (2017), during (2021) and after (2026) the pandemic. Our original research (Fish & Snodgrass, 2014;2015) presented several individual and program factors that we have been following. Individual factors are specific to the individual and include motivation, discipline, self-directed learning and independence, schedule flexibility, time and cost investment, preference, happiness and appropriateness for learning environment. Program factors, which are decisions that the instructor makes in developing the course, studied include academic difficulty, academic integrity (cheating), student-to-student interaction, student-to-instructor interaction, and program technologies. Additional information that has been gathered includes demographic responses to age, gender, major or discipline, level taught, faculty rank, self-reported technological skill level, whether the instructor took an online training course and if so, where, and whether the instructor taught online and if so, how many courses they taught. Prior to and during the pandemic, we surveyed instructors on their perceptions of online versus FTF education at a University that had focused on FTF education (Fish & Snodgrass, 2018a, 2018b, 2024). During the pandemic, results revealed that faculty at this University still preferred FTF education over online education for almost all of the individual and program factors studied. The online and FTF instructors appeared to be more homogenous than in the past study (2017). At the time (2021), it appeared that the online faculty were less favorable toward online teaching. In the spring of 2025, we surveyed instructors to evaluate their progression on these factors.

As an understanding of instructors' and students' perspectives of online versus FTF education evolve, understanding these transitions and differences is needed. The results may guide future online pedagogy, instructor strategies and technology integration to support the educational experience online (Redman & Perry, 2020). Studies prior to the pandemic (Mitchell, Parlamis & Claiborne, 2015; Vivolo, 2016) revealed that generally, instructors resist teaching online and are skeptical of online education (Allen & Seamen, 2015, 2016). Due to the pandemic, the number of faculty online increased significantly. Following the pandemic, while many instructors continued to teach at least one course online or hybrid courses, most instructors still teach courses FTF (Mowreader, 2025). A more flexible, hybrid teaching experience currently exists as many instructors teach in more than one modality (Mowreader, 2025). In a recent study, instructors felt that effective online instruction requires different pedagogical strategies than traditional FTF education, but they also noted that online methods could be used to support learning (Ahmed et al., 2023). Interestingly, another study found that academics did not feel that online education would replace FTF education anytime soon (Gecer, Bagci & Atar, 2023). While the results were not broken down by specific business subdisciplines, our prior studies, we noted that perceptions are shaped by broader course and instructor values and expectations (Fish

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& Snodgrass, 2023). Business instructors often view online and hybrid modalities as a tool rather than a replacement for optimally teaching core skills (Fish & Snodgrass, 2023).

We have been conducting our research on instructor and student online versus FTF perspectives at a mid-sized, Jesuit, Catholic private school in the northeastern United States with a focus on teaching. The institution focuses on business, education, arts and sciences, and class sizes average 17 students. Serendipitously, we began our study of instructors' perceptions four years prior to the pandemic. At the time, roughly half of the instructors at the University taught courses online, and many others resisted doing so. Over 75% of online instructors preferred to teach FTF while being 'okay' with their online happiness. The majority of online instructors felt online education was appropriate to offer at the University. Online instructors felt online required more discipline, independence, schedule flexibility, and time investment than FTF. They felt that it was easier to cheat online and that online was more difficult than FTF. Online instructors felt FTF offered more student-to-student interaction than in the online environment. Online instructors were indifferent to motivation, self-directed, cost investment, and student-to-instructor interaction.

During the pandemic, courses moved online mid-semester. Instructors scrambled to transition courses from FTF to the online environment. These courses were not 'true' online courses. However, in the semesters that followed, instructors were required to develop and teach all of their courses online. Our second instructor survey was conducted an entire year into the pandemic (April 2021). Our study results indicated that during the pandemic, over 60% of the online instructors wished to be in the FTF environment. They were indifferent to the appropriateness of online education. Online instructors felt online required more discipline, schedule flexibility, and time investment. They felt online was more difficult and that it was easier to cheat online. Online instructors felt FTF offered more motivation, self-direction, student-to-student interaction, and student-to-instructor interaction. They were indifferent between the two environments with respect to independence, cost investment and happiness online versus FTF.

After the pandemic subsided, instructors were given the choice to continue courses online or FTF. In the spring of 2025, instructors were surveyed a third time on their perceptions. This study offers insight into the progression of instructor perceptions on instructor individual and program factors from before, during and after the pandemic. Our research question is: *Have instructors individual and program factors perceptions of online education compared to face-to-face education changed over time?*

LITERATURE REVIEW UPDATE: INDIVIDUAL FACTORS FOLLOWING THE PANDEMIC

We continue with a brief research update on the instructor individual and program factors since publishing our last instructor study (Fish & Snodgrass, 2024). A recent study noted that online education facilitates individualized and interactive learning (Guo & Li, 2024). Another study emphasized that a high-quality online course should include flexibility, responsiveness, student support, self-reported learning, interaction, ease of technology use, and technical support (Hilton, Moos, & Barnes, 2020). Other literature updates include the following:

Motivation. By instructors teaching courses online, they may be motivated and improve their attitude about online teaching (Borup & Evmenova, 2019). Since visual and physical cues are missing in online classes, many instructors find it difficult to gauge student engagement and interest, and therefore, they feel that online is demotivating for both students and instructors (Yan & Pourdavood, 2024). In one study, instructors felt that they had more pedagogical freedom and satisfaction in the FTF environment, which in turn was motivational (El-Soussi, 2022). Instructors typically note that online is demotivating (Gecer, Bagci & Atar, 2023). Key factors that motivate instructors often include the real-time engagement, immediate feedback for both students and instructors, and physical classroom dynamics of the FTF classroom (El-Soussi, 2022). In our initial study, instructors were indifferent to the two environments with respect to motivation, but during the pandemic, instructors favored FTF as being more motivational than online (Fish & Snodgrass, 2018b; 2024).

Discipline. In our prior studies, instructors felt that more discipline was required online than FTF (Fish & Snodgrass, 2018b). Online instructors believe that online teaching demands more self-discipline from themselves compared to the traditional FTF classroom (Fish & Snodgrass, 2024).

Self-directed. Instructors view students as needing to actively participate and independently manage their learning online, and instructors need to create opportunities to foster self-directed learning (Sidi, Shamir-Inbal, & Eshet-Alkalai, 2023). During the pandemic, researchers noted that instructors' beliefs about the online education efficacy may be related to their feelings on student autonomy and self-regulation (Almomani et al., 2023). Researchers noted

that faculty view online and hybrid models as requiring intentional attention to the design structure to encourage self-direction, while FTF was more intuitive for real-time engagement and immediate feedback (Ahmed et al., 2023; Watson et al., 2023). Online instructors expressed concerns about key aspects of self-directed learning – interaction and monitoring learning (Watson et al., 2023). People often view components of self-direction, such as immediate feedback, social presence and accountability, as being less online than FTF (Ahmed et al., 2023). In the initial study, online instructors were relatively indifferent to the self-direction required online; however, by the pandemic, they felt that less self-direction was needed in the online environment compared to FTF (Fish & Snodgrass, 2024).

Independence. In one study during the pandemic, instructors reported that the online environment constrained their ability to teach using methods that emphasized their individual identity and pedagogical autonomy (Salmon, Ross, Pechenkina & Chase, 2021). Instructors believed that they could not implement their preferred teaching approaches, which led to a reduction in their perceptions of independence (Salmon et al., 2021). Instructors believe that FTF offers more freedom to teach, improvise, adjust their teaching styles and uses their preferred pedagogical styles (El-Soussi, 2022). Interestingly, a recent study found that instructors initially may perceive online as reducing their independence, their feelings of independence can increase with experience (Alcaide-Pulido, Gutiérrez-Villar, Ordóñez-Olmedo & Pérez-Escolar, 2025). Another study found that instructors with a greater confidence in their own technological skills as well as technological competence perceived more independence in online education (Zhang, 2024). Research suggests that online learning that enhances autonomy support may, in turn, influence instructors' viewpoints on independent learning in the online versus FTF discussion (Shankar & Robinson, 2024). Prior to the pandemic, online instructors at our institution slightly favored online education as offering more independence; however, during the pandemic, they were relatively indifferent (Fish & Snodgrass, 2024).

Schedule flexibility. A driving factor as to why instructors choose online classes over FTF is schedule flexibility (Johnson, Veltsianos, & Seaman, 2021a; Mowreader, 2025). Instructors value online education for its ability to adjust timelines, use digital communication tools, record lectures, and provide asynchronous materials (Ahmed et al., 2023). Online instruction also provides instructors greater flexibility in managing course delivery and student interactions as well as maintaining continuity during disruptions (Ahmed et al., 2023; El Said, 2022) and accommodating students who live or work far from campus (Mowreader, 2025). However, online offers increased pedagogical challenges due to the scheduling flexibility (Kerr-Sims & Baker, 2021). In our prior studies, online instructors favored online as offering more schedule flexibility (Fish & Snodgrass, 2024).

Time Investment. During the pandemic, instructors perceived a significant change and stress due to time management difficulties due to the rapid shift to online education (El-Soussi, 2022). Instructors reported that online preparation time increased over FTF delivery (Kerr-Sims & Baker, 2021). Instructors also noted an increase in stress and workload associated with online teaching (Ahmed et al., 2023). Instructors indicate for online courses that they spend a significant time in preparing materials, facilitating student-to-student and student-to-instructor interaction, course coordination and providing feedback (Ahmed et al., 2023). In both of our prior studies, instructors perceived that online instruction required more time investment than FTF (Fish & Snodgrass, 2024).

Cost Investment. Researchers often cite the concept that online education is less costly for individuals and institutions. However, institutions and individuals need to consider that the additional effort in developing online courses, mastering new software platforms and delivery methods as well as asynchronously interacting, represents a cost in terms of instructor time and institutional support resources (Medina et al., 2023). Additionally, online course student evaluations tend to be lower than for FTF courses, which are driven by the perception of a lack of instructor availability and interaction, and in turn, these influence the perceived cost and return on investment for instructors and institutions (Zhang & Atwater, 2025). In our initial study, instructors were indifferent to the cost investment between online and FTF education (Fish & Snodgrass, 2018b). During the pandemic, instructors perceived that their cost investment was less online than FTF (Fish & Snodgrass, 2024).

Preference for the Opposite Environment. Over 20 years ago, research indicated instructors would gravitate towards instructional practices that they were most comfortable with (Hinson & LaPrairie, 2005). Specific to our research, our survey asked instructors if they would prefer to be in the 'opposite' environment than they were responding from (in this case, would online instructors prefer to be in a FTF environment). Initially, instructors were indifferent to the two environments, but during the pandemic, instructors favored a return to FTF (Fish & Snodgrass, 2024). In another study, instructors perceived interaction, engagement and communication as important factors in education and favored the FTF environment (García-Morales, Garrido-Moreno, & Martín-Rojas, 2023). Instructors felt FTF was important for instructional activities and interaction between students and instructors (Atwa et al., 2022). They felt online

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education was dependent upon technological competences and instructional design (García-Morales et al., 2023). Additionally, one study noted that many instructors combined online features with in-class interaction, and more than half of the faculty at the institution taught online or in more than one modality (Mowreader, 2025). Yet another study noted that while instructors acknowledged the benefits of online tools, they felt that they were more effective and engaged in FTF classes (Watson et al., 2023). Today's educational landscape reveals a trend toward 'hybrid', flexible courses (Mowreader, 2025). Many instructors retain some online components, but they did not fully replace FTF teaching (Watson et al., 2023). Similarly, in another study, instructors preferred blended or FTF education over fully online education (Atwa et al., 2022).

Happiness with environment. Our research specifically asked respondents if they were 'happy' with the environmental perspective that they were responding from (for this paper, 'online'). As the pandemic began, instructors – especially when institutional support was available - reported moderate satisfaction with online teaching (Johnson, Veletsianos & Seaman, 2021b). During the pandemic, positive instructors' attitudes about the shift to online teaching were related to higher engagement, while negative attitudes were associated with higher 'burnout' levels (Daumiler et al., 2021). One study noted that instructor satisfaction with online teaching is related to overall well-being and job satisfaction (Santos et al., 2022). Another study found that instructors perceive higher teaching satisfaction and experiences as well as higher instructional quality in FTF compared to online education (Alshurai, 2024). Important contributors to instructor happiness includes flexibility, technological support, and student interaction and engagement (Santos et al., 2022). Many instructors noted an increase in stress and workload in transitioning to online teaching (Santos et al., 2022) Initially, online instructors were happier with online than FTF, but during the pandemic, they were indifferent to the two environments (Fish & Snodgrass, 2024).

Online appropriateness. Instructor perceptions of online appropriateness improved when courses are specifically designed as online courses (Sudarshan, 2024). Researchers reported that instructors felt maintaining engagement and interaction online can be challenging (Ahmed et al., 2023). Instructors found it difficult to replicate interactive experiences from FTF in the online environment (Ahmed et al., 2023). While instructors perceived FTF education was more appropriate for laboratory or clinical courses, hands-on training and courses requiring discussions, they perceived online education was more appropriate for theory-based subjects, lecture-focused courses, and advanced or independent learners (Sudarshan, 2024). In our prior studies, online instructors felt that online education was appropriate at the institution (Fish & Snodgrass, 2024).

LITERATURE REVIEW: PROGRAM FACTORS UPDATE FOLLOWING THE PANDEMIC

Program factors address decisions that the instructor makes when designing and delivering the course. With a shift from FTF to online, the instructor's role shifts from control and direction to facilitator and support. Program factors that we have been tracking include difficulty, student-to-student interaction, student-to-instructor interaction, and cheating. A few noteworthy research updates include:

Difficulty: Online instructors struggle with replicating the FTF dynamics (Ahmed et al., 2023) and the pedagogical challenges (El-Sousi, 2022). One study found that instructors perceived online education as less rigorous and effective in developing skills, such as leadership and collaboration (El-Sousi, 2022). In another recent study, instructors reported that online instruction required significantly more effort to oversee expectations, felt that online education was inferior to FTF in several areas including teaching effectiveness and building community, and that it required a significant amount of time and effort to deliver (Johnson et al., 2021a). In one study, instructors felt that they could not use their FTF pedagogies online, which contributes to instructors' perceiving that it was more difficult (Salmon et al., 2021). In yet another study, instructors recognized that online education requires different pedagogical strategies and could be more difficult in terms of engagement and interaction (Ahmed et al., 2023). Another study noted that online instructors perceived online teaching as being difficult in terms of engagement and communication as online limits students' questioning compared to FTF (Rao et al., 2024). Instructors find developing interactive lecturers as a significant challenge of online teaching (Ahmed et al., 2023). Instructors also noted that technological challenges, a lack of non-verbal cues, and difficulties providing feedback, made teaching online more complex (Salmon et al., 2021). Another study noted that in spite of its benefits, instructors note common limitations to online education (El-Sousi, 2022). In our prior studies, online instructors felt online education was more difficult than FTF (Fish & Snodgrass, 2024).

Student-to-Student Interaction: Prior to the pandemic, instructors believed that online education was less effective in promoting student-to-student interaction (Shreaves et al, 2020) and may contribute to students' feelings of isolation

(ElSaid, 2022). Lower perceived effectiveness of online education is related to a decrease in peer interaction in comparison to FTF education (ElSaid, 2022). Following the pandemic, instructors continued to perceive student engagement and interaction as a major concern in online education, and they indicated that online requires intentional instructional design and technology (Ahmed et al., 2023). Instructors reported problems in creating interactive learning and fostering student interaction online versus FTF, and instructors felt students were less likely to participate or question in the online environment (Sudarshan, 2024). To support student-to-student interaction, improvements through course design and technology are required (Hou et al., 2024). Effective online student-to-student interaction may include structured group assignments, discussion boards, and collaborative digital tools. In both of our prior studies, instructors at the University perceived student-to-student interaction initially to be less online than FTF (Fish & Snodgrass, 2024).

Student-to Instructor Interaction: One study noted that instructors' excitement to teach is related to student interaction and classroom dynamics (El-Soussi, 2022). With respect to student-to-instructor interaction, instructors perceive that online education inhibits interaction compared to FTF (Ahmed et al. 2023), limits non-verbal feedback (El-Sousi, 2022) and decreases student socialization and increases students' feelings of isolation (Gecer, Bagci & Altar, 2023). Instructors consistently report that developing meaningful student-to-instructor interaction online is significantly harder online than FTF (Ahmed et al., 2023). Initially, online instructors were indifferent to the two environments, but during the pandemic, instructors perceived the student-to-instructor interaction to be less online than FTF (Fish & Snodgrass, 2024).

Cheating. Most studies indicate that students and instructors believe that it is easier to cheat online than FTF (Alessio & Messinger, 2021; Johnson, Veletsianos & Seaman, 2021a). Interestingly, one study noted that instructors perceived more cheating online than students perceived (Amzalag, Shapira & Dolev, 2021). Instructor's perceptions often perceive student access to notes, internet resources and un-proctored exams as potential sources for academic dishonesty (Alessio & Messinger, 2021). In an effort to decrease cheating, instructors implement policies and technology, such as online proctoring software, open-book exams and project-based assessments (Alessio & Messinger, 2021). Research indicates that instructors who teach more online courses perceive less differences in cheating between online and FTF (Alessio & Messinger, 2021). In our prior studies, instructors and students at the University perceived online education as being easier to 'cheat' in (Fish & Snodgrass, 2024).

Summary. Our prior research noted that following the pandemic due to an increase in online education, instructors' perceptions of online versus FTF education may look very different than before and during the pandemic. Studies note that institutional size, audience, research method, and study's context may be important considerations in interpretation of the outcomes. From a contextual standpoint, it's important to note that at the University studied, University instructors are responsible for delivery of online content, do not have online course designers, and are encouraged to use the University's platform (Desire2Learn) as well as other software and programs (Youtube, Dropbox, Panopinto, etc.) in course delivery. The intent of this study is to analyze whether instructors' perceptions have changed from before, during and after the pandemic.

METHOD

As part of a larger, on-going study at an AACSB-accredited, Jesuit, Catholic University in the spring of 2025, following the pandemic, instructors completed an online Qualtrics-administered survey to assess their perceptions of online versus FTF education. The Academic Vice President and Internal Review Board approved of the survey distribution. The survey was sent to instructors three times over March 2025 through a list server. The survey was originally sent in the spring of 2017 and 2021. It consisted of demographic questions, followed by either instructor completion of Section A (online education perspective) or Section B (FTF education perspective). Demographic questions included age, gender, respective school the instructor associates with, teaching level (undergraduate, graduate or both), level taught, faculty rank, self-reported technological skill level, online course experience as a student, and online teaching experience. Instructors who had taught at least 1 online course completed Section A (online perspective), while instructors who had never taught in the online environment completed Section B (FTF perspective). Sections A and B have corresponding questions on the perceptions noted; however, Section A statements are specific to "*I found*" versus Section B statements are "*I perceive*". The survey used a five-point Likert scale for each of the factors: significantly dislike, dislike, okay, like, significantly like. (The instructor survey can be accessed at: DOI: https://dx.doi.org/10.15239/j.brcacadje.2018.08.01.wa02). The last questions in each section asked the instructor if the instructor would prefer the opposite environment, the instructor's emotional happiness with the learning environment, and whether the instructor felt that online courses were appropriate for the institution. For

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instructors with online experience, the last open-ended question inquired as to why they chose to offer an online course. For instructors without online experience, the survey included an open-ended question inquiring 'why not'.

ANALYSIS

As shown in Table 1, in the initial survey in 2017, half of the instructors (41) complete the original survey from the online perspective and half (41) completed it from the FTF perspective. During to the pandemic in 2021, there was a significant shift to online teaching experience as over 79% of the respondents (93) completed the survey during the pandemic from the online perspective and only 21% completed it from the FTF perspective (25). For the current survey, the majority (39) instructors completed the survey from the online perspective. (Respondents were not required to answer every question.) To give the reader some contextual understanding, Table 2 shows the number of responses for each survey for the online instructors, and Table 3 shows the average instructor response prior to the pandemic (2017), during the pandemic (2021) and after the pandemic (2025).

Table 1. Number of Instructors Online & FTF 2017, 2021 and 2025

Survey Year	Online	FTF	Total
2017	41	41	82
2021	93	25	118
2025	39	2	41
Total	173	68	241

Table 2. Number of Responses by Factor for Online Instructors in 2017, 2021 and 2025

Factor	2017					2021					2025				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Individual Factors															
Motivation	4	7	24	2	4	12	21	50	6	4	5	7	18	2	2
Discipline	1	3	12	14	11	2	7	34	30	19	1	2	16	11	4
Self-directed	7	8	14	9	3	22	24	30	9	7	10	8	12	1	3
Independence	3	4	16	14	4	14	19	24	30	6	6	7	8	9	4
Schedule flexibility	1	4	11	14	11	6	18	14	39	15	3	9	7	10	5
Time investment	2	3	8	16	12	1	2	26	39	24	1	6	11	13	3
Cost Investment	0	6	26	4	1	7	15	56	10	4	3	6	21	3	0
Preference opposite?	18	11	12			54	19	17			22	5	7		
Happiness with environment	3	6	12	10	10	13	16	30	19	14	6	6	10	4	8
Appropriateness	30	8	3			53	19	20			24	4	6		
Program Factors															
Difficulty	1	6	14	14	6	2	6	29	37	18	0	6	11	13	4
Student-to-Student Interaction	5	14	12	9	1	24	35	21	10	3	7	9	14	1	3
Student-to-Instructor Interaction	5	10	16	6	4	17	38	27	8	3	13	8	9	3	1
Cheat	6	14	20	0	1	25	29	34	1	2	13	8	9	3	1

Table 3. Online Instructor Average Perceptional Responses –2017, 2021 & 2025

Factors	2017	2021	2025
Individual Factors			
Motivation	2.88	2.67	2.68
Discipline	3.76	3.62	3.44
Self-directed	2.83	2.51	2.38
Independence	3.29	2.95	2.94
Schedule flexibility	3.73	3.42	3.15
Time investment	3.80	3.90	3.32
Cost investment	3.05	2.88	2.73
Preference opposite?	1.85	1.59	1.56
Happiness with environment	3.44	3.05	3.06
Appropriateness	1.34	1.64	1.47
Program Factors			
Difficulty	3.44	3.68	3.44
Student-to-Student Interaction	2.68	2.28	2.53
Student-to-Instructor Interaction	2.85	2.38	2.44
Cheating	2.41	2.19	2.15

This study's intent was to compare instructors' perspectives for the individual and program factors over the years; however, it was important to test whether the populations were indifferent to the two learning environments. Indifference to the two environments was indicated by the respondents with a response of '3' (the scale midpoint) on any factor. As shown in Table 4 (two-tailed t-tests for a hypothesized difference to the midpoint (3)), all of the individual factors differed significantly from the 'indifference' point except in 2017, for motivation (p=.44), self-directed (p=.36), cost investment (p=.64) and student-to-instructor interaction (p=.41); in 2021, for independence (p=.66), cost investment (p=.19), and happiness with the environment (p=.68); and in 2025, for independence (p=.79), schedule flexibility (p=.49) and happiness with the environment (p=.81). Indifference indicates that the respondent does not view the environments differently.

Table 4. Two-Tail T-Test Significance from Hypothesized Mean Difference from Midpoint (3) Online vs FTF

Factors	2017	2021	2025
Individual Factors			
Motivation	0.44	0.00 *	0.07
Discipline	0.00 *	0.00 *	0.01 *
Self-directed	0.36	0.00 *	0.01 *
Independence	0.08	0.66	0.79
Schedule flexibility	0.00 *	0.00 *	0.49
Time investment	0.00 *	0.00 *	0.06
Cost investment	0.64	0.19	0.05 *
Preference opposite?	0.28 *	0.00 *	0.00 *
Happiness with environment	0.09	0.68	0.81
Appropriateness	0.00 *	0.00 *	0.00 *
Program Factors			
Difficulty	0.01 *	0.00 *	0.009 *
Student-to-Student Interaction	0.06	0.00 *	0.021 *
Student-to-Instructor Interaction	0.41	0.00 *	0.008 *
Cheating	0.00 *	0.00 *	0.000 *

* $p \leq .05$

Since the survey data was discrete, Chi-Square analysis using the contingency coefficient as the nominal value was performed for online instructor factors. In this study, we were interested in analyzing changes between the years on

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the individual factors. As shown in Table 5, online instructor's perceptions did not change for the majority of the individual and program factors except for time investment (p=.039) and a 'slight' significance for student-to-student interaction (p=.067) and student-to-instructor interaction (p=.065).

Table 5. Online Instructor Perceptions by Survey Year (2017, 2021 & 2025)

Metric	Pearson Chi-Square Value	Df	Asymptotic Significance (2-sided)	Pearson's R	Spearman Correlation
Individual Factors					
Motivation	2.493	8	.962	-.074	-.070
Discipline	3.857	8	.870	-.108	-.118
Self-directed	8.238	8	.411	-.129	-.141
Independence	7.200	8	.515	-.105	-.100
Schedule flexibility	9.640	8	.291	-.169	-.161
Time investment	16.217	8	.039 *	-.155	-.170
Cost investment	5.099	8	.747	-.133	-.112
Preference opposite (FTF)?	4.440	4	.350	-.127	-.137
Happiness with environment	5.191	8	.737	-.105	-.106
Appropriateness of Online	5.837	4	.212	.066	.053
Difficulty	5.760	8	.674	.010	.008
Student-to-Student Interaction	14.620	8	.067 **	-.058	-.069
Student-to-Instructor Interaction	10.369	8	.240	-.137	-.145
Cheating	14.699	8	.065 **	-.098	-.118

* $p \leq .05$ ** $p \leq .10$

DISCUSSION

The focus of this long-term study was to analyze the changes in instructor's perceptions of online versus FTF education on individual and program factors over the years. From our initial study (2017) to our study of instructors during the pandemic (2021), our analysis showed that there were no significant changes on any factor between the two survey years (Fish & Snodgrass, 2024). Since the pandemic subsided, the technology and educational environment continued to evolve. However, with the exception of time investment, instructor's perceptions for all of the factors have not significantly changed. Instructor's perceptions of the differences between the two educational environments have remained consistent over the past decade.

Instructors' consistent and stable perceptions have both positive and negative implications. On a positive note, since instructors have maintained consistent perceptions of online education over the past decade, this consistency may help to create a stable educational framework for online course design, delivery and assessment. Additionally, consistency may be viewed by students positively as they know what to expect in terms of online content, pacing and interaction. Instructors' consistent perceptions may assist with standardization across the institution in terms of pedagogy, quality and equity, which in turn can support compliance, accreditation, and online standardization across the institution. Instructor's consistent and stable perceptions may foster institutional coherence, engagement, and reliability, which may contribute to positive online learning. On a negative note, these results suggest that instructor perceptions are not changing at the same rate as technology and potentially, students' perceptions. The lack of change may highlight a need for instructor online training and support. This is particularly important as Artificial Intelligence (AI) utilization continues to grow. Unchanged instructor perceptions may negatively impact upon the effective integration of modern teaching techniques, which may include AI, and therefore, potentially limiting students' learning.

Individual Factors. Individual factors are specific to the individual instructor's perceptions. Except for time investment, instructors have not changed their perspective of online versus FTF for the individual factors that we have been studying. Instructors at this University were originally indifferent to two environments with respect to motivation. While they were forced to teach online during the pandemic and experienced more online courses, today's instructors are less motivated online than in the FTF environment. This result supports another recent study that indicated that instructors were demotivated online (Gecer, Bagci & Atar, 2023). As in our past studies, instructors at the University

still believe that online teaching demands more discipline from students and themselves compared to FTF classrooms. In the initial study, online instructors were relatively indifferent to the self-direction required online. However, by the pandemic, they felt that less self-direction was needed in the online environment compared to FTF (Fish & Snodgrass, 2024). Today, instructors perceive that online education offers even less of a self-directed environment than past studies. Perhaps, instructors perceive that they need to foster fewer self-directed, online learning experiences than in the past. In the initial study, instructors favored online education as offering more independence, which shifted to indifference between the two environments on independence during the pandemic. Today, instructors are indifferent to their independence in the two environments. While not a significant shift, this trend may fit with the results of a recent study that found instructors may initially perceive online as reducing their independence and as their deliver more online courses, they may increase their feelings of independence (Alcaide-Pulido et al, 2025). With respect to schedule flexibility (which is typically noted as a driving factor as to why instructors and students choose online courses), in the past instructors favored online for schedule flexibility. The recent survey results indicated that instructors were indifferent to this factor. Perhaps, as their experience online increases, instructors are finding that there is also an increase in the pedagogical challenges associated with this scheduling flexibility similar to another study (Kerr-Sims & Baker, 2021). Current instructors' perceptions of time investment are significantly different than when this study began before the pandemic. Initially, instructors felt that online required more time investment than FTF. However, they are more indifferent to the two environments now than in the past. There are a number of possible explanations for this. Perhaps as instructor's skills and understanding in developing and delivering online courses have grown over the years and the emotional stress caused by the pandemic to 'go online has decreased, instructors may be more indifferent to the time investment required online than in the past. Additionally, instructors may have developed a stockpile of resources that they can use over again; for example, recorded video lectures. In past survey's, instructors were indifferent to cost investment between the two environments. While a significant shift was not noted, current instructors perceive that online requires less cost investment than FTF. Perhaps as the institution has increased its support resources for online education, instructors feel that they have more support now than in the past, which indirectly reduces instructors perceived costs. Over 20 years ago, research indicated instructors would gravitate towards instructional practices that they were most comfortable with (Hinson & LaPrairie, 2005). In all of our studies, instructors overwhelmingly prefer to teach FTF than online. This result supports other researchers results that indicated today's instructors, while including online components in their classes, still prefer FTF teaching (Atwa et al., 2022; Mowreader, 2025; Watson et al., 2023). Initially, online instructors were happier with online than FTF. That is to be expected since the instructors teaching online in the initial study had moved online by choice. However, instructors during the pandemic and following it, are indifferent to their happiness online and FTF. Again, this may be a result of changes in the teaching environment related to the need to go online during the pandemic and the readjustment afterwards. There are no mandated sections of online courses at the University. Faculty are free to choose among online, hybrid and FTF formats. Other researchers also reported that instructors were moderately satisfied, or 'happy' with online teaching (Johnson et al., 2021b). In all of our prior studies, online instructors indicated that online education was an appropriate.

Program Factors. Program factors address decisions that the instructor makes when designing and delivering the course. In all three survey years, instructors perceived that online courses were more difficult than FTF, which is in keeping with other recent studies (Johnson et al, 2021a; Salmon et al., 2021). Perhaps, since instructors at this institution would prefer to teach FTF, they struggle with the difficulties encountered in transitioning their pedagogies and unique skill set to the online environment. In addition, the University does not have a dedicated team of course development specialists to assist instructors in the online environment. With respect to interaction, instructors continue to perceive that there is less interaction between students online than FTF. Student-to-student interaction is trending toward even less interaction than in the past. Perhaps technological improvements that the instructors could use to improve this interaction (Hou et al., 2024) are not available or known by current instructors at this institution. Instructors perceive less interaction with students and themselves online than FTF, which is similar to many studies (Ahmed et al., 2023; El-Soussi, 2022; Gecer, Bagci & Altar, 2023). Most studies indicate instructors perceive that its easier for students to cheat online than FTF (Alessio & Messinger, 2021; Johnson, Veletsianos & Seaman, 2021a). In our three survey years, instructors perceived that it was easier to cheat online. In spite of technological and educational improvements to deter cheating, instructors' beliefs about cheating are trending towards being even 'easier' to cheat online than FTF than in the past.

While students' perceptions changed by experiencing more online education (Fish & Snodgrass, 2014), instructors at this University have not changed their perspectives on the individual and program factors, with the exception of time investment, over the past decade. These results may be related to this particular University as other Universities may have different results. These results represent one 'datapoint' in the continued changing educational landscape.

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CONCLUSION

While technology and educational changes have occurred over the past decade and instructors have experienced more online courses and components, instructors have not changed their perspectives on the individual and program factors studied, with the exception of time investment. Following the pandemic, online instructors perceive that they are less motivated, less self-directed, there is less cost investment, less student-to-student interaction, and less student-to-instructor interaction online than FTF. They also perceive that its easier – even easier than in the past – to cheat online. However, online instructors perceive that online education requires more discipline than FTF. Today's online instructors view online and FTF education equally for independence, schedule flexibility and the happiness with the online environment. A significant change in online instructors' perceptions occurred with respect to time investment. In all of the survey years, online instructors perceive that online requires more time investment than FTF; however, they are more indifferent to time investment now than in the past. Instructors at the institution still believe that online education is appropriate at the University. As in the past and in spite of the technological and educational changes and gaining more experience in developing and delivering online courses, online instructors at the University still prefer to be in a FTF classroom than online. This may be related to the fact that the average class size at the University is 17, with few classes exceeding 30 students. Consequently, the classroom experience at this University tends to be very friendly and personal. Similar to other studies from other institutions, online instructors still prefer to develop and deliver courses in a physical environment. Going forward, like other institutions, it will be interesting to note how the two environments are 'blended' in the future deliver of education, and the impact these changes have on educators and students' perceptions.

Limitations. While our study originally surveyed instructors that had experienced and those that had not experienced online education on the factors, given the pandemic, few instructors (2) completed the survey from the FTF perspective (Survey B). Therefore, since there were very few instructors who complete section B, a comparison between the two populations, as in the past, cannot be made. Additionally, this research was conducted at one private, Jesuit, institution, and as we've noted previously, results at other institutions may differ significantly.

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Bridging the Soft Skills Gap: Integrated and Experiential Approach in Business Education

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ABSTRACT

This study evaluates an integrated approach to address the persistent gap between employer demand for soft skills and traditional academic preparation in business education. Implemented at a mid-sized business school, the 7-credit Critical Skills and Thought (CST) program integrated three courses covering professional development, ethics, and consulting experiences. Students also earned a digital badge credential upon completion. End of semester survey results showed positive outcomes: 100% of students rated the experience valuable for professional development, 87.5% agreed the courses were well-integrated, and 81% recommended the program for all business majors. The independent soft skills course showed particular strength in fostering a growth mindset (4.47/5.0 average improvement), with communication identified as the most critical career skill by all respondents.

Keywords: business education, soft skills development, classroom experiment, integrated curriculum, experiential learning, digital badge

INTRODUCTION

The modern workforce increasingly demands professionals equipped with strong interpersonal and behavioral competencies, commonly referred to as soft skills (Robles, 2012). These capabilities, such as communication, teamwork, critical thinking, and adaptability, have emerged as differentiators in career advancement and organizational success. Research consistently demonstrates that approximately 85% of job success stems from well-developed soft skills, while 44% of workers' core competencies are expected to change by 2027 (National Soft Skills Association, n.d.; World Economic Forum, 2025). It should be noted that the term "soft skills" will be used in this paper; however, other terms are also commonly used to describe those skills (e.g., 21st century skills, transferrable skills, durable skills).

Despite this clear market demand, a persistent gap exists between industry expectations and the preparation provided by higher education. Succi and Canovi (2020) found that 86% of employers emphasize soft skills more than they did the previous decade, yet students often underestimate the importance of these skills. This disconnect is particularly striking for specific competencies: employers ranked traits like ethical behavior, adaptability to change, and creativity significantly higher in importance than students did (Succi & Canovi, 2020). Current business education approaches frequently fail to develop the integrative thinking and collaborative abilities that employers identify as critical for early-career success (Beachboard et al., 2011). Furthermore, the post-pandemic workplace has intensified these demands. According to the National Association of Colleges and Employers' Job Outlook 2025, employers now prioritize problem-solving ability (89.7% of respondents), teamwork (79.7%), and written communication skills (over 50% consider essential), while only 37% of employers still screen candidates by GPA (down from 73.3% in 2019) (National Association of Colleges and Employers, 2025).

This challenge prompted the development of a way to better cultivate soft skills in business students. The result was a 7-credit integrated "Critical Skills and Thought" (CST) program that combined professional development, business ethics, and real-world consulting projects in a cohesive, cohort-based sequence. The strategic component was a 1-credit independent soft skills course focused on essential professional competencies (e.g., communication, teamwork, adaptability) through active learning exercises. The program emphasizes experiential learning and cross-disciplinary integration as promising approaches to address the soft skills gap. In the following sections, outlined are the theoretical foundations of the program, the implementation procedure, key findings, and a discussion of specific conclusions and implications for business education.

FOUNDATION FOR THE SIGNIFICANCE OF THE INSTRUCTIONAL EXPERIMENT

The following sections provide research and industry background supporting the implementation of this model to enhance professional soft skills in education.

Theoretical Framework for Integrated Learning
The movement toward integrated soft skills education rests on converging theoretical frameworks that guided the design. Drake and Reid's (2020) Integrated Curriculum Continuum provides a model for progressively deeper integration: from multidisciplinary (sharing themes across separate courses), to interdisciplinary (explicitly linking concepts across courses), to transdisciplinary (centering learning around real-world problems rather than discrete disciplines). The CST program was structured with this continuum in mind, intentionally creating explicit connections among the professional development, business ethics, and a consulting course to achieve an interdisciplinary synergy.

Kolb's Experiential Learning Theory offers a complementary pedagogical foundation through its four-stage cycle: concrete experience, reflective observation, abstract conceptualization, and active experimentation (Morris, 2019). This framework informed the design of both interventions, ensuring that students would engage in real experiences (e.g., consulting projects, role-play exercises), reflect on and discuss those experiences, connect them to conceptual frameworks, and then actively apply their new insights. In practice, this meant emphasizing hands-on activities over lectures, incorporating reflection journals and class debriefs, and encouraging students to continuously test and refine their soft skills in realistic scenarios.

Evidence Supporting the Need for Education Innovation
Empirical evidence strongly supports integrated, experiential approaches over traditional lecture-based methods for soft skills development. A recent systematic review of soft skills programs across educational settings found that diverse interventions consistently led to improved student competencies, higher employability, and even gains in academic performance (Orih et al., 2024). In general, students in integrated curricula tend to show higher engagement and better performance on learning assessments compared to those in non-integrated programs. At the same time, implementing such approaches in higher education has proven challenging. The barriers to meaningful soft skills integration are multifaceted and deeply entrenched. Faculty resistance to curricular change, often rooted in professional identity, is a primary obstacle (Matteson, Anderson, & Boyden, 2016). Other challenges include difficulties in assessing soft skills growth, resource constraints for more labor-intensive teaching methods, and a persistent disconnect between academic objectives and industry expectations. These factors underscore why innovative experiments like the CST are needed to identify practical pathways for curriculum reform.

Employer Expectations vs. Student Perceptions
The scope of the soft skills gap extends globally and is well documented. Dean and East (2019) reported that nearly half of employers worldwide who noted skill gaps in their organizations identified deficiencies in soft skills as a major concern. In line with employer priorities, recent industry data highlight which soft skills are most in-demand. LinkedIn Learning's analysis of job trends for 2024 identified communication as the #1 most sought-after skill across all professional fields, followed by customer service, leadership, complex problem-solving, and research ability (LinkedIn, 2024). Notably, adaptability exhibited the greatest year-over-year growth in demand, reflecting how vital the ability to learn and adjust has become in a rapidly changing work environment (LinkedIn, 2024). On the education side, there is evidence that some important soft skills receive insufficient emphasis in curricula. For instance, an analysis of graduate program outcomes found that while creativity, leadership, and analytical thinking are commonly stressed, empathy and ethical reasoning are among the least emphasized competencies (Garcia-Chitiva & Correa, 2024). Our integrated CST program's inclusion of an ethics course and focus on interpersonal development was designed to address this often-neglected area.

In summary, the literature and industry trends highlight a clear mandate: business educators must innovate to produce graduates with the multifaceted soft skills that modern organizations require.

Digital Badge Component
The CST program's survey results lend support to existing research on how digital badges motivate college students. When asked whether digital badges would encourage participation in the program, 81.25% of CST respondents reported at least some positive effect: 43.75% said "Definitely yes," 37.5% said "Somewhat yes," and only one participant indicated "Definitely not." This aligns with studies in higher education showing that digital badges are valued by students for recognition, motivation, and skill documentation. For example, Poirier et al. (2021) found that students perceived digital badges to have value across recognition, learning, and motivation dimensions; both intrinsic and extrinsic motivators were significant predictors of willingness to pursue badges. Similarly, a 2024 large-scale study found that digital badges serve not only as acknowledgment of learning but help students demonstrate credibility and professional development. Another study (Schürmann, 2022) observed that badges can satisfy students' psychological needs without introducing frustration, particularly for competence and progress.

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Digital badges also offer tangible evidence of competencies that might otherwise be overlooked, enabling students to showcase skills in portfolios or professional settings. This kind of visible, portable recognitional credential strengthens motivation by making progress and achievements explicit. Given these findings, the CST program's positive feedback of over 80% indicating badges positively influenced their participation suggests that a well-designed badge system will not only make the program more appealing to prospective students but may also enhance engagement.

PROGRAM DESCRIPTION AND IMPLEMENTATION

Critical Skills and Thought (CST) Program (7 credits)

This integrated program consisted of three courses taken back-to-back in a single semester. The courses were: Independent Soft Skills (1 credit), covering content on self-awareness and emotional intelligence with an emphasis on professional-human-durable skills; Business Ethics (3 credits), covering ethical frameworks, decision-making, and corporate responsibility through a hybrid model meeting in-person once a week focusing on highly interactive group discussions and presentations with theory/book content covered asynchronously online; and Applied Business Consulting (3 credits), providing a capstone-style experience where students applied business concepts in real consulting projects for local organizations in small groups, taught by a business professional.

Table 1: Schedule of CST Courses

	Mondays	Wednesdays
Soft Skills (1 cr)	2:00-2:50	
Ethics (3 cr)	Async	2:00-3:15
Consulting (3 cr)	3:30-4:45	3:30-4:45

The 40-minute gap on Mondays allowed for travel time to the outside business and other flexible programming needs throughout the semester. Students understood to block the 2:00-4:45 time each Monday and Wednesday and be adaptable to scheduling start/end changes within that time frame.

Students enrolled in all three courses as a cohort, meaning they attended these classes together and worked with the same peers and faculty throughout the term. Faculty from different courses coordinated their syllabi to reinforce common themes and learning objectives. For example, a communication skill introduced in the professional development course would be actively practiced in the consulting project, or an ethical issue discussed in the ethics course might be examined in context during a consulting engagement. By design, the CST program was an interdisciplinary learning community, emphasizing consistent application of soft skills across various content areas in a cohesive experience.

Independent Soft Skills Course (1 credit)

This elective course was the significant component of the program, created to address the critical skills gap identified in research and from industry. Meeting for one hour per week semester, the course targeted skills such as adaptability, communication, growth mindset, time management, and emotional intelligence. Instruction was highly experiential: class sessions included activities like role-playing, simulations, reflective discussions, and self-assessment surveys (for students to evaluate their strengths and areas for growth). The course was only one credit but intense "booster" for soft skills, complementing the rest of the curriculum.

Professional-Student Mentoring

The program also implemented a mentoring partnership with the local chamber of commerce Young Professionals organization (YPs). The mentoring activity aligned one YP with two college students in the program. The main goal was to connect students to local businesses to show them the opportunities of future employment and the quality of life in the community. To accomplish this, the students and YPs met at the beginning and end of the semester on campus and students visited the business sometime in the middle of the semester. Then every three weeks, email prompts were sent out on various topics related to soft skill development. The students and YPs would then discuss online each topic. This further enhanced their development of soft skills.

Data Collection Procedures

Data on the program was collected through end-of-semester, non-interventional surveys administered online to ensure confidentiality and encourage candid responses. Such course surveys do not meet threshold for need of ethical approval. Each survey included quantitative measures using Likert-scale items (1 = strongly disagree to 5 = strongly agree) gauging student satisfaction and perceived learning. Items included "This program was valuable for my

professional development," "I improved my teamwork skills through this course," and "The different parts of the program were well integrated." Qualitative questions consisted of open-ended prompts inviting narrative feedback, including "What was the most valuable part of this learning experience and why?", "What is one thing you learned about yourself during the course?", and "What improvements would you suggest for future iterations?" These questions provided rich qualitative data, including direct student quotes about their experiences.

In addition, formative course and learning feedback was also gathered. The CST program conducted mid-semester individual meetings for early impressions and suggestions, enabling real-time instructional adjustments. The mid-course check-in solicited feedback on pace and topics, ensuring programs remained responsive to student needs as they developed.

REPORT OF FINDINGS

Critical Skills and Thought (CST) Program Results

The CST program evaluation revealed high student satisfaction and perceived value. Every student (100%) agreed that the CST experience was valuable for their professional and career development. Students' open-ended comments frequently used terms like "unique opportunity" to describe the experience. One student wrote, "This program connected everything I've learned in college to real business practice. It was the single most beneficial experience of my college career."

Importantly, 87.5% of the CST students agreed that the three courses were well-integrated, with the remaining 12.5% neutral and none disagreeing. This suggests the curriculum design succeeded in creating a cohesive learning journey. Many students highlighted the value of having consistent themes and projects carry across classes. They particularly praised the cohort format and scheduling: 87.6% gave positive ratings to the back-to-back cohort structure, which they felt enhanced their ability to collaborate and apply concepts continuously. Several students noted that being with the same peers and professors throughout the afternoon "made learning feel connected and meaningful." These results suggest that the integrated, cohort-based model may help address the coordination challenges that often undermine interdisciplinary programs.

Finally, 81% of the CST participants said they would recommend making this integrated program a requirement for all business majors. The rest suggested it remain optional for those who can fit it into their schedule, and most felt the junior year was the ideal timing in the curriculum for such an experience.

Independent Soft Skills Course Results

The 1-credit soft skills elective showed strong positive outcomes. Growth mindset development received the highest self-reported improvement, with an average rating of 4.47/5. This suggests the course may have helped students feel more open to challenges, more persistent after failures, and more resilient, which are qualities embodying a growth mindset. This result is encouraging given that a growth mindset can enhance lifelong learning and adaptability, traits valuable in any career.

When asked to rank the soft skills by importance for their impending careers, 100% of the students put communication skills as the most important skill. This unanimous consensus reinforces the emphasis on communication that the course (and indeed the CST program) already had. It also mirrors employer surveys that find communication to be a top skill gap. Students rated themselves as significantly more confident in various communication contexts after the course; for example, one student noted in a journal entry that "speaking up in meetings used to terrify me, but after our sessions, I feel ready to contribute in my internship."

Consulting Experience Outcomes

The consulting project was cited as the highlight of the program by the majority of students. In open-ended responses, students described the consulting experience as both challenging and rewarding, emphasizing that it forced them to apply their soft skills under real conditions. As one student noted, "The ability to tie three classes together and create a central focus on professional development was a game changer for me in my college experience." Through the consulting projects, students reported gaining real-world application of classroom concepts, enhanced problem-solving confidence, improved client communication skills, greater understanding of business complexity, and strengthened teamwork capabilities.

Overall, the CST program not only taught soft skills in theory but gave students a safe and realistic space to practice and internalize those skills. The unanimous agreement on the program's value and the specific gains reported suggest

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that an integrated, experiential curriculum may help foster the kinds of outcomes (confidence, communication, adaptability, in-depth teamwork, professional mindset) that typical college courses often struggle to achieve.

Student Feedback and Improvement Suggestions

When prompted for suggestions to enhance the course, common themes emerged. Students were enthusiastic about adding more networking practice, such as a mock networking event with local professionals or alumni, to build confidence in that area. They also recommended inviting guest speakers to share real-world examples of soft skills in action, which they felt would further solidify the relevance of what they were learning. Some wanted additional peer feedback opportunities. Lastly, a couple of students suggested allowing more time for reflection and debrief, noting that since the course was only one credit, it moved quickly; they felt extending certain discussions or having follow-up sessions on complex topics (like emotional intelligence) could deepen their learning. These suggestions align with best practices in professional skill development, such as providing networking and mentorship opportunities and ensuring adequate reflection time for experiential activities.

The CST program, by virtue of its scope and credit load, provided a comprehensive, immersive experience that wove soft skills development throughout three courses in a semester. This led to holistic development as students improved in various areas simultaneously and experienced how those skills interconnect in real business contexts. The cohort aspect of CST was particularly powerful for building community and sustained peer support. In contrast, the 1-credit course offered a targeted, flexible intervention: it allowed any student, at any point in their studies, to engage in a short intensive boost to their soft skills. It was more individualized, letting each student focus on specific skills they personally wanted to improve.

In comparing the two approaches, a few distinctions stand out: students perceived the CST program as delivering broad professional development value (100% rated it valuable) and reported strong curricular integration (87.5% integration satisfaction), whereas the independent course showed notable self-reported skill gains (for example, a sizable jump in growth mindset) and underscored students' prioritization of communication skills (all respondents ranking it first). Notably, the program gained strong student endorsement and high engagement, indicating that students are eager for soft skills learning when it's done in an interactive and authentic way. The complementary nature of the results suggests that there is more than one effective method to teach soft skills: an intensive multi-course approach can drive deep, applied learning within a cohort, and a one-credit course can create substantial self-reported growth in a short time. Institutions may choose an approach based on their constraints and objectives, but importantly, the findings suggest that students can benefit from a well-designed soft skills intervention.

CONCLUSIONS

Validation of Integrated Curriculum Design

While this pilot study involved only 19 students, the consistently positive results support the view that interdisciplinary, experiential curricula can enhance professional readiness while maintaining academic satisfaction. The integrated approach appeared to deepen understanding of business processes by linking courses and maintaining consistent cohorts. These preliminary findings align with literature calls for breaking down business education silos (Drake & Reid, 2020) and suggest that intentionally designed integrated programs may yield favorable outcomes compared to traditional standalone courses (Orih et al., 2024). Further research with larger samples and longitudinal tracking is needed to confirm these initial observations.

Two students noted the ethics course could be replaced by a leadership course. The faculty agree the 3-credit courses can be changed, but integration is key and the 1-credit skills course is imperative to addressing the skills gap.

Effectiveness of Experiential Learning Components

Findings highlight experiential learning's important role in soft skills development. Students consistently identified consulting projects, simulations, and active learning as most impactful. As one industry executive evaluating student presentations noted, "We can teach new hires the technical stuff, but we need people who can already think, communicate, and work with others." This practitioner perspective reinforces that competencies like problem-solving, teamwork, and communication may be best learned through experience rather than theory alone. Results align with Kolb's "learning by doing" framework and suggest business programs could benefit from incorporating more hands-on projects, internships, and simulations for soft skills development.

Critical Importance of Communication Skills
Communication ranked as the top skill by students and was practiced throughout the program. This aligns with employer research consistently identifying communication as the most critical competency (Robles, 2012; LinkedIn, 2024). Communication skill development should thread through entire business curricula, with presentation and explanation opportunities embedded even in non-communication courses. The significant improvement in "growth mindset" among soft skills course participants reveals another key insight: explicitly addressing mindset makes students more receptive to developing soft skills by teaching that abilities improve through effort.

Implementation Insights for Educators
This experience yields practical lessons for similar program development. Cohort structures enhance learning by grouping students across multiple experiences to build camaraderie and support networks. This cohort became a community of practice where students felt comfortable taking risks and helping each other grow. Real-world applications are essential, as students consistently found realistic tasks most valuable. Authentic experiences provide motivation and make abstract "soft skills" concepts tangible. Integration requires intentional design; running integrated programs demands planning and coordination. Our faculty team met frequently to align assignments and avoid overlap. Faculty credibility matters, as instructor enthusiasm and reputation are important for attracting students and setting high standards. Select faculty who know the content but believe in the importance of soft skills and model these behaviors.

Addressing the Skills Gap
The positive outcomes suggest that higher education can make meaningful progress on the soft skills gap challenge. By collaborating internally and with industry partners while reimagining course structures, business programs may be better positioned to produce graduates with adaptive, human-centered skills employers need. Students in this pilot responded enthusiastically to such innovations, countering assumptions that "students don't want more work on soft skills." When done authentically, students appeared to view soft skills development as critical to their success. This type of educational innovation may help ensure graduates are equipped not only with business theory knowledge but also with abilities to apply it in team settings, lead ethically, communicate clearly, and continue learning professionally. These preliminary results suggest that integrating soft skills into curricula is a promising strategy for better aligning academic outcomes with workforce needs.

Limitations
While the results are encouraging, several limitations temper their interpretation. The most significant is the small sample size. With only 19 students in a single cohort at one institution, the findings cannot be generalized broadly and should be read as preliminary. The results also rest on student self-report. Satisfaction ratings, perceived skill gains, and the growth mindset measure all reflect how students viewed their own development rather than independently verified competency, so responses may carry self-report and social desirability bias. Furthermore, the study did not include objective outcome measures, such as employer assessments, standardized skill evaluations, or post-graduation performance, that would confirm whether perceived gains translate into demonstrated ability. Finally, the single-semester window does not capture long-term retention or career impact. These limitations do not undermine the program's promise, but they do define it as a proof-of-concept that warrants larger, longitudinal, and more objectively measured study.

Scalability and Future Directions
The piloted model offers multiple institutional pathways. Resource-intensive approaches can be scaled by incorporating into core curricula or offering multiple cohorts. Low-credit courses provide flexible solutions for reaching more students or fitting into tighter curricula. The key is intentional design elements like active learning, topic integration, and relevant context rather than specific format.

Future research should explore long-term impacts by tracking graduates into early careers to assess whether alumni outperform peers in teamwork or leadership roles, and gathering employer feedback on student preparedness. Technology's growing role presents opportunities to integrate digital simulations or AI-driven coaching into soft skills training.

Final Conclusions
This classroom experiment provides preliminary evidence that business education can begin to address the documented soft skills gap through innovative, experience-rich pedagogy. The question is no longer whether soft skills should be prioritized in business curricula, but how to design and implement effective approaches for developing career-ready graduates. Future business leaders must combine technical expertise with human skills that technology

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cannot replicate. Our findings suggest both comprehensive integrated programs and focused skills courses hold promise for developing such leaders. Institutions may take meaningful steps toward closing the gap between classroom learning and workplace performance by thoughtfully incorporating soft skills development through integrated course sequences, standalone modules, or other creative formats. Business educators should feel encouraged to experiment with these approaches, knowing that students in our pilot were eager to engage and reported feeling better equipped to collaborate, adapt, and succeed.

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Improving Student Attendance in Principles of Macroeconomics Through Implementation Intentions

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ABSTRACT

Class attendance plays a key role in student performance, especially in subjects like economics, where regular attendance is vital for understanding complex concepts. This study used an experimental design across six sections of Principles of Macroeconomics (N = 193) to examine how implementation intentions affect student class attendance. The experimental group specified how, when, and where they would attend class. The results indicate that implementation intentions effectively encouraged class attendance. This suggests that using implementation intentions is a simple and low-cost way to boost attendance in macroeconomics courses, which could lead to better academic performance.

Keywords: attendance, absenteeism, implementation intention, macroeconomics

INTRODUCTION

Class attendance is a key factor in higher education. It directly affects students' academic performance and overall educational results. Studies have shown that regular class participation boosts engagement, improves grades, and raises course completion rates (Weijers et al., 2022). Attendance is a fundamental behavior for achieving success in higher education and it often has a greater impact than other factors, such as previous GPA (Hazaa et al., 2021). Despite these clear benefits, absenteeism remains a widespread problem in higher education. Instructors frequently report that attendance levels are low or concerning (Muresherwa & Nji Bama, 2024).

Several forces make attendance a persistent problem even when students want to succeed. First, present bias leads students to value the immediate benefits of skipping class, such as rest or reduced stress, more than the delayed costs of lower grades or missed learning (Ariely and Wertenbroch, 2002). As a result, students who intend to attend regularly often fail because short term temptations outweigh future benefits. This gap between intention and behavior is well documented, as people tend to overestimate their future self-control and underestimate situational pressures (Gollwitzer and Sheeran, 2006). Second, attendance is a repeated decision made at every class meeting. While missing one class seems minor, these small choices accumulate over time, and each absence makes the next more likely by increasing the difficulty of returning (Credé et al., 2010). Third, structural pressures such as work, caregiving, and financial strain create real conflicts that motivation alone cannot solve (Mearman et al., 2014; Oldfield et al., 2017). Finally, institutional responses are often reactive, relying on warnings or penalties after habits have formed rather than preventing them. This gap between knowing one should attend and consistently doing so is what implementation intentions are designed to address.

The widespread adoption of remote and hybrid learning during and after the COVID-19 pandemic may have fundamentally reshaped student expectations around in-person attendance, adding a new layer of complexity to an already persistent challenge. When institutions transitioned to virtual formats beginning in 2020, students grew accustomed to attending class from home, accessing recorded lectures asynchronously, and participating in coursework without a physical presence (Weijers et al., 2022). Even as campuses reopened, these experiences appear to have recalibrated what many students regard as "normal" attendance behavior. The flexibility and convenience of remote participation may have weakened the perceived social and academic obligation to attend in person, a norm that had long been reinforced by institutional culture and peer behavior (Muresherwa & Nji Bama, 2024). Instructors in post-pandemic environments have reported that students are more likely to expect accommodations for absence—such as recorded lectures or asynchronous alternatives—even when courses are officially offered in person (Martínez-Serna et al., 2024). Understanding the post-pandemic normative context is therefore critical for evaluating the potential of any attendance intervention, which must now contend not only with individual self-regulation deficits but also with a broader cultural shift in how students relate to the physical classroom.

The use of implementation intentions as an intervention strategy has shown promising results in improving attendance rates. For instance, structured planning exercises that help students outline how, when, and where they will attend

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lectures have been effective in encouraging behavioral changes (Webb et al., 2007). These interventions leverage psychological mechanisms that connect situational triggers with intended actions, which increases the chances of following through with planned behaviors. The current study builds on existing research by looking at how implementation intentions affect attendance in traditional, face-to-face macroeconomics courses. This subject often requires consistent participation to understand complex concepts, and absenteeism tends to be high (Romer, 1993).

LITERATURE REVIEW

Class Attendance and Academic Performance

Many studies have explored the connection between class attendance and academic success, consistently finding a strong positive link between the two factors. Nyamapfene (2010) noted that attendance is positively related to exam performance, coursework, and project work. This finding suggests that regular attendance plays an important role in achieving academic success in various assessments. Hazaa et al. (2021) found that missing classes harms academic performance, especially in higher education, where independent learning is crucial. Weijers et al. (2022) discovered that even when accounting for factors like motivation and study habits, class attendance was still a strong predictor of educational achievement. Credé et al. (2010) compiled data from various studies to explore the relationship between class attendance and grades in different fields. Their meta-analysis confirmed a strong positive link between these factors, showing that the relationship applies across various educational settings.

Research shows a positive link between class attendance and academic performance in college Economics courses. For example, Romer's (1993) well-known study on undergraduate Economics courses found a clear difference in average grades between students who attended regularly and those who did not. Likewise, Durden and Ellis (1995) showed that student absences negatively impacted performance in Principles of Economics courses. Broker et al. (2013) found that absenteeism had a significant negative effect on students' final grades in their Principles of Microeconomics class. Similarly, Cortinhas (2025) looked at how participation in tutorials affects academic outcomes in Intermediate Macroeconomics. The study provided evidence that attending tutorials is linked to better performance. This collection of research highlights the importance of attending classes to improve understanding and retention of course material. Together, these studies show a clear but complex connection between class attendance and academic success.

Interventions to Improve Attendance

Upper-level students (i.e., juniors and seniors) tend to exhibit stronger attendance patterns compared to those at introductory levels, possibly due to greater investment in specialized degree programs at advanced stages of education (Kelly, 2012). Thus, for lower-level students enrolled in general courses like macroeconomics, an attendance policy, or some other type of intervention, is needed to encourage consistent attendance. Numerous studies have examined the effectiveness of attendance policies and interventions.

Marburger (2006) provided support for the effectiveness of mandatory attendance policies. His analysis showed that absenteeism was much lower in classes with these policies than in those without. Other studies suggested that mandatory attendance policies can slightly improve grades, but the results are not strong enough to warrant their widespread use. Dobkin et al. (2010) found that introducing mandatory attendance policies increased attendance and exam performance for the students affected. However, they also noted that the policy could have negative side effects. Increased attendance requirements might take away time needed for studying other subjects, which could hurt academic performance in classes not covered by the policy (Dobkin et al., 2010). The effectiveness of mandatory attendance policies also varies among different student groups. Lecture attendance has been shown to have a small positive effect on passing rates for low attendees but has very little impact on those who attend more than average (Kirby & McElroy, 2003). This indicates that while mandatory policies may help some students, they could be unnecessary or even harmful for others. Weijers et al. (2022) noted that self-selection bias should also be taken into account when assessing mandatory attendance policies. Students who are naturally more committed or interested in a course might show higher attendance rates and better performance on their own. This makes it difficult to separate the true effects of mandatory attendance policies from other factors that influence student behavior.

Schmidt and Raines (2019) observed that absenteeism tends to rise throughout the semester when strict attendance policies are not in place. This observation highlights how graded attendance policies could help counter this trend. By assigning real consequences to attendance, these policies may encourage students to value class participation. This, in turn, fosters more consistent engagement with the course material. Massingham and Herrington (2006) noted that

attendance at tutorials or seminars is higher than at lectures because assessment is linked to participation. This finding suggests that graded attendance policies might use similar ideas by creating requirements that connect student behavior with academic expectations. Martínez-Serna et al. (2024) found a link between class attendance and exam participation, which supports the idea that graded attendance policies could influence academic outcomes by keeping students engaged throughout the semester. Although graded attendance policies show promise in reducing absenteeism and possibly improving academic performance through increased engagement, their success depends on careful implementation and consistency with broader teaching goals (Massingham & Herrington, 2006; Credé et al., 2010; Marburger, 2006; Kelly, 2012).

Incentive-based approaches, like grade incentives or rewards, have become an important strategy to improve student attendance in higher education settings. Devadoss and Foltz (1996) noticed differences in attendance patterns among various economics courses. This was based on whether participation was encouraged through quizzes or write-ups for missed sessions, or whether it was completely optional. These findings suggest that adding methods that reward or penalize attendance can affect student behavior. Strategies based on incentives, aimed at specific groups of students, can provide better solutions to absenteeism. For example, low-performing students who do not respond to general interventions might benefit from personalized outreach or incentive-based programs tailored to their specific needs (Cortinhas, 2025).

Behavioral nudges are subtle prompts or cues designed to guide individuals toward desired actions while preserving their autonomy (Thaler & Sunstein, 2021). The use of nudges in education has shown mixed results. For example, interventions like email reminders that highlight positive behaviors among peers were used to boost student engagement but did not lead to significant improvements in tutorial attendance (Cortinhas, 2025). This suggests that while nudges can be effective in some cases, their success is not guaranteed and may depend on factors like the type of intervention and the target audience.

Behavioral nudges can also have unintended consequences. Some studies have shown that these interventions may prompt a reaction where individuals resist perceived attempts to control their behavior (Arad & Rubinstein, 2018; Bruns & Perino, 2019). This reaction was seen in commitment-based interventions where students who did not respond to the nudge had lower attendance rates compared to those who engaged with it (Weijers et al., 2022). Like other attendance interventions, behavioral nudges are also subject to self-selection bias. This means that differences in class attendance observed before and after an intervention may reflect the characteristics of students who choose to engage, rather than the direct impact of the intervention itself (Weijers et al., 2022).

Technological tools and applications have become important in tackling the challenge of improving student attendance in schools. These tools provide new ways to track attendance and engage students better. This promotes a stronger commitment to attending classes. For example, behavioral contract interventions used through digital systems have shown success in boosting attendance rates in online courses (Weijers et al., 2022). These systems let students commit to specific attendance goals and give real-time feedback on their progress. These interventions use technology to make it easier to set and track goals, helping to overcome the self-control issues that often affect regular class participation (Sommer & Haug, 2012). Another technological solution is mobile apps made for attendance management. These apps let students check in digitally during class, which reduces administrative work and ensures accurate record-keeping. Some apps also add game-like elements that reward students for consistent attendance with points or badges. This motivates students through positive reinforcement (Marinescu & Popescu, 2025). These innovations show how technology can not only help monitor attendance but also actively shape student behavior.

Implementation Intentions in Student Behavior

Implementation intentions are specific plans that connect situational cues to goal-directed behaviors. They detail how, when, and where a person will take actions that lead to reaching their goals (Gollwitzer, 1999). These plans act as a link between setting goals and taking real steps, helping people turn their broader objectives into practical actions. Unlike general goal intentions, which only describe desired outcomes, implementation intentions outline the exact conditions under which a behavior should happen. This increases the chance that the behavior will actually occur (Sheeran et al., 2002).

In educational settings, especially in Macroeconomics courses, implementation intentions can significantly influence student attendance and performance. Hollett et al. (2020) argued that boosting students' initial excitement about attending classes through informal commitments at the start of a semester might improve attendance rates. Implementation intentions could be a useful tool for reinforcing these early commitments by giving students clear

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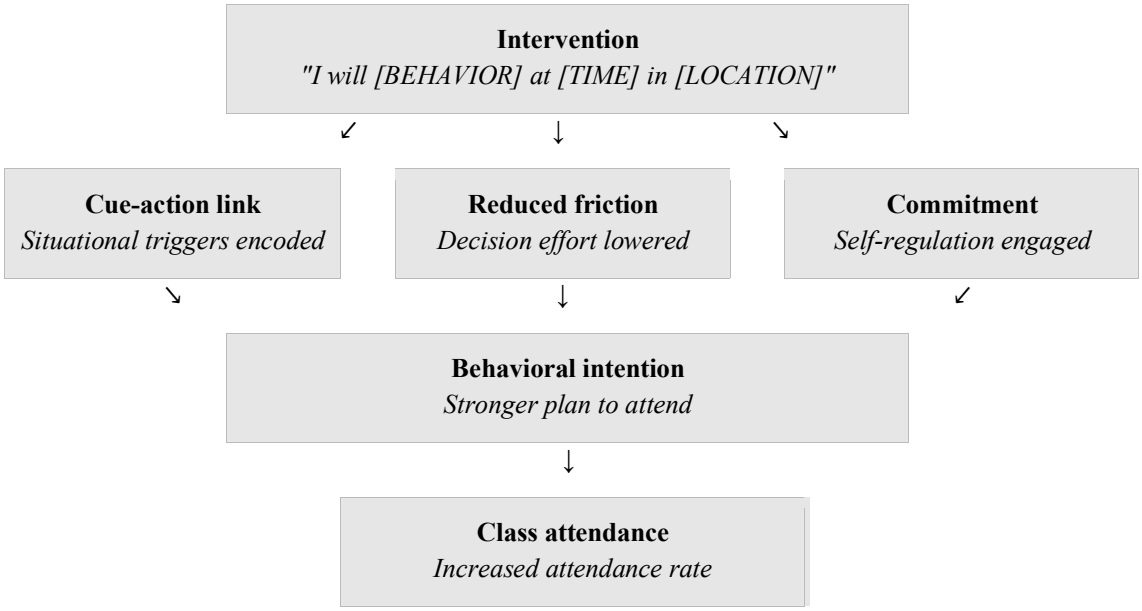
steps to reach their academic goals. For instance, structured planning exercises that prompt students to outline how they will attend lectures under specific conditions have proven effective in promoting behavioral changes over short periods (Webb et al., 2007).

In a more recent study, Elliot et al. (2024) tested an attendance help sheet that allowed students to express implementation intentions using an IF-THEN planning format. The results of this study strongly support the effectiveness of implementation intentions as a method for increasing lecture attendance; however, these findings were limited to an 11-week online course. These findings highlight the importance of structured planning in guiding student actions, indicating that students who clearly plan their attendance are more likely to follow through. Such structured approaches can be especially helpful in Macroeconomics courses, where regular attendance often leads to better academic results.

The literature suggests a coherent psychological pathway through which implementation intentions influence attendance behavior. As illustrated in Figure 1, the intervention — prompting students to complete the statement "I will [BEHAVIOR] at [TIME] in [LOCATION]" — is theorized to operate through three mechanisms. First, specifying a precise situational cue encodes a cue-action link, such that the cue automatically triggers the intended behavior when encountered, reducing reliance on deliberate recall (Gollwitzer, 1999). Second, pre-deciding when and where to attend lowers the cognitive friction involved in the attendance decision at the moment it must be made (Sheeran et al., 2002). Third, articulating a concrete plan activates self-regulatory commitment, increasing the likelihood of follow-through (Webb et al., 2007). These mechanisms converge to strengthen behavioral intention, which in turn predicts actual attendance.

Figure 1: Conceptual model of the implementation intentions intervention and its effect on class attendance



The Present Study

The existing literature shows important gaps in understanding how attendance policies affect student behavior. Research has looked closely at the impact of various interventions on class attendance, but studies focusing on Economics courses are rare. Economics courses often involve complex theories and quantitative analyses that may need more engagement than other subjects. Understanding how these unique demands influence attendance behaviors is an unexplored area. This gap is especially clear when looking at how implementation intentions can serve as an intervention to improve attendance in traditional in-person courses.

This study aims to explore the impact of implementation intentions as a behavioral intervention to improve attendance rates in Principles of Macroeconomics. It is hypothesized that students who adopt implementation intentions will have higher attendance rates compared to those who do not use such strategies.

METHOD

Participants and Design

This study adopted a between-subjects design. The participants consisted of 193 students in Principles of Macroeconomics classes at a small, private university in the south. The data was collected in eight sections of the course that were taught in the 2022 to 2025 Spring semesters. The average class size was 24 students. The same professor taught all courses. The courses were taught at 8:00 am and 9:00 am on Monday, Wednesday, and Friday. During the first week of class, students completed an ungraded quiz/survey that focused on course policies and the syllabus. Half of the students were asked to plan how, when, and where they would attend class over the semester. The professor carefully monitored class attendance throughout the semester.

Measures

Implementation Intentions

The students randomly selected for the experimental group received the following instructions in their survey: "Formulate your plan for attending class for the next 15 weeks. What measures will you take to avoid missing class? State your plans in the following form: 'I will [BEHAVIOR] at [TIME] in [LOCATION].'" Five blank lines were included to allow students to write down their implementation intentions. The students in the control group did not receive this instruction.

Students typically identified a precise behavioral target (e.g., "attend my 9:00 a.m. lecture"), an exact temporal cue (e.g., "at 8:50 a.m." or "right after my previous class"), and a specific spatial context (e.g., a named building and room). They frequently elaborated these plans by embedding them with existing routines (e.g., "after breakfast" or "after meeting friends") or brief "if-then" contingencies to address anticipated barriers (e.g., "feeling sleepy" or "need to study for other class"), further reinforcing the link between situational cues and the intended behavior.

Attendance

The way classroom attendance is defined and measured in academic research varies. One common approach is the frequency of attendance, which is often quantified as the proportion of attended classes relative to the total number of classes offered (Elliot et al., 2023; Dey, 2018). The current study uses a variation of this method that adjusts for schedule differences, exam dates, and excused absences. The data was collected across four Spring semesters in 15-week classes that met three times a week. However, the total number of class meetings was not the same each year due to scheduling, campus activities, and weather-related campus closures. Five examination dates were omitted from the attendance measure since attendance was mandatory on those dates, and students rarely missed exams. In addition, excused absences were omitted from the attendance measure. Students were absent if they did not receive permission from the professor to miss class. An excused absence was granted only if the student could demonstrate appropriate cause, such as an official university function, documented illness, or family emergency. Thus, the attendance for each student was measured using the following formula:

$$Attendance = \frac{Number\ of\ classes\ attended - 5\ exam\ dates}{Potential\ number\ of\ class\ meetings - 5\ exam\ dates - Number\ of\ excused\ absences}$$

Control Variables

The control variables were chosen based on the existing literature in this area. Cumulative GPA upon entering the class was included as a measure of academic strength. The student's academic classification was entered as a categorical variable, which takes the value of 1 for freshmen, 2 for sophomores, 3 for juniors, and 4 for seniors. For the regression analysis, the classification of freshman was treated as the reference variable. Gender was expressed as a binary variable taking the value of 0 for male and 1 for female. The class meeting time was expressed as a binary variable that takes a value of 1 if the class meets at 9:00 am and 0 if the class meets at 8:00 am. Information on GPA, classification, and gender was extracted from university records.

RESULTS

Randomization Check

In order to determine whether there were any significant differences between the participants in the experimental and control groups, a series of independent samples t-tests and chi-square tests were conducted. There were no significant

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differences between the groups in any measure, other than the attendance measure (see Table 1). The assumption that the experimental and control groups are not significantly different in a way that could lead to biased results, therefore, seems justified.

Table 1: Tests of Difference Between the Conditions

Variable		Control	Experimental	Test of Difference
Attendance	Mean (SD)	0.87 (0.09)	0.92 (0.07)	t (*df* = 191) = 3.76**
GPA	Mean (SD)	3.31 (0.37)	3.37 (0.35)	t (*df* = 191) = 1.04
Gender				χ^2(*df* = 1) = 0.06,
Male	*n* (%)	63 (65.6)	62 (63.9)	
Female	*n* (%)	33 (34.4)	35 (36.1)	
Class time				χ^2(*df* = 1) = 0.42
8:00 am	*n* (%)	46 (47.9)	51 (52.6)	
9:00 am	*n* (%)	50 (52.1)	46 (47.4)	
Classification				χ^2(*df* = 3) = 1.67
Freshman	*n* (%)	12 (12.5)	10 (10.3)	
Sophomore	*n* (%)	48 (50.0)	42 (43.3)	
Junior	*n* (%)	22 (22.9)	26 (26.8)	
Senior	*n* (%)	14 (14.5)	19 (19.6)	

*$p < 0.05$; **$p < 0.01$

Descriptive Statistics

Table 2 presents the mean, standard deviation, range, and bivariate correlations among the study variables. On average, students attended 89% of the class meetings. The mean GPA of the sample was 3.31 on a 4-point scale. Thirty-five percent of the sample was female, and 49% of the sample attended the 9:00 section of the course. Principles of Macroeconomics is generally considered a sophomore-level course. As such, 11% were freshmen, 47% of the students in the sample were sophomores, 25% were juniors, and 17% were seniors. Inspection of the correlations revealed that attendance had a moderate, positive correlation with GPA, gender, and class time. GPA was also positively correlated with gender.

Table 2: Descriptive Statistics and Correlation Matrix

Variable	M	SD	Range	1.	2.	3.	4.	5.
1.Attendance	0.89	0.08	0.63 – 1		0.58**	0.36**	0.23**	0.07
2.GPA	3.34	0.36	2.53 – 4.00			0.26**	0.13	-0.04
3.Gender (Female = 1)	0.35	0.48	0 – 1				0.01	0.07
4.Class time (9:00 am = 1)	0.49	0.50	0 – 1					-0.10
5.Classification	2.48	0.91	1 – 4					

*$p < 0.05$; **$p < 0.01$

Effects of the Implementation Intention on Attendance

In order to investigate the effectiveness of the implementation intention, an independent samples t-test was conducted to compare attendance in the control and experimental groups. In support of the hypothesis, the difference between the conditions was statistically significant (see Table 1). The students in the experimental group had higher attendance ($M = 0.92$, $SD = 0.07$) than those in the control group ($M = 0\ .87$, $SD = 0.09$), $t(191) = 3.76$, $p = 0.01$.

The simple bivariate analysis in Table 1 suggests that class attendance in Principles of Macroeconomics can be improved through the use of an implementation intention strategy. The bivariate analysis, however, does not control for other factors. To better assess the empirical relationship between the implementation intention and class attendance, hierarchical multiple regression was used to predict class attendance (see Table 3). The independent variables were entered in two blocks: GPA, gender, class time, and classification were entered in Step 1, and the implementation intention was entered in Step 2.

At Step 1, GPA, gender, and class time were significant predictors of class attendance, $F(6, 186) = 24.67$, $p < 0.001$, and accounted for 42% of the variance. Consistent with much of the prior literature, a student's GPA was significant and positively correlated with attendance. As suggested in previous studies, a student's GPA is probably a proxy not just for their intelligence, but also for their level of effort as well (Kerr & Park, 1990). Alternatively, Self (2012)

suggests that students who have better grades to begin with are less likely to miss class because they wish to maintain or improve their GPAs. Gender was a significant predictor of class attendance, with females having better attendance than males. Similar results were reported by Woodfield et al. (2006). The difference in attendance rates may be explained by female students' greater compliance with institutional/instructor policies (Francis et al., 2001). Alternatively, Turner and Gibbs (2009) suggested that female students generally adapt better to higher education requirements. Attendance was better in the 9:00 am sections of the course than in the 8:00 am sections. Devadoss and Foltz (1996) found that classes scheduled in the late morning or early afternoon were better attended than other class times. This conclusion was supported by Kelly (2012), who showed that early lectures negatively affect attendance, especially for students living off campus. Student classification was not found to be a significant predictor of class attendance.

Table 3: Hierarchical Multiple Regression

Step	Variable(s) entered	β	β
1	GPA	0.51***	0.49***
	Gender	0.22***	0.22***
	Class time	0.20**	0.21***
	Sophomore	-0.08	-0.09
	Junior	-0.09	-0.11
	Senior	0.12	0.10
2	Implementation intention		0.22***
ΔR^2		0.42	0.05
ΔF		24.67***	17.99***
R^2		0.42	0.47
Model F		24.67***	25.65***

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

The addition of implementation intention at Step 2 had a positive effect over and above the control variables ($\Delta R^2 = 0.05$, $\Delta F = 17.99$, $p < 0.001$). Consistent with the independent samples t-test, students in the experimental group attended a greater proportion of class meetings than students in the control group. On average, students who received the implementation intention attended approximately two more classes over the 15-week semester than students who did not receive the implementation intention. These results are similar to those of Webb et al. (2007) and Elliot et al. (2023) and support the hypothesis that implementation intentions can be effective in promoting class attendance.

DISCUSSION

Key Findings and Contributions

The present research investigated the impact of implementation intentions on student attendance in Principles of Macroeconomics courses. Over a four-year period, 193 students in eight sections of Principles of Macroeconomics were monitored for attendance. All sections of the course were taught by the same professor in 15-week, in-person classes. At the start of each semester, students were given an ungraded quiz/survey. Half of the students (the experimental group) were asked to plan when, where, and how they would attend class. It was hypothesized that students in the intervention group would have higher attendance than those in the control group.

In support of this hypothesis, the implementation intention was successful in enhancing class attendance. Students who did not receive the implementation intention attended 87% of classes, whereas students who received the implementation intention attended 92% of classes. These findings are consistent with Webb et. al.'s (2007) study, which showed that an implementation intentions intervention can increase lecture attendance rates in on-campus lectures. However, the findings of the current study provide stronger evidence for the effectiveness of implementation intentions as a strategy for increasing class attendance because student characteristics (e.g., GPA, gender, and classification) and class time were used as control variables in the regression model. In addition, since all sections examined in this study were taught by the same instructor, the results were not confounded by varying instructional methods and assessment tools.

The improvement in class attendance is important because of the structure and demands of Principles of Macroeconomics courses. Key concepts build on one another, and missing classes can create significant knowledge gaps. Moreover, consistent participation is often linked to completing quizzes, submitting homework, and progressing

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to the final exam. Missing these essential parts can lead to serious academic problems, including failing grades and potential issues with financial aid for students who are reported as having stopped attending.

The post-pandemic context in which this study was conducted adds further weight to these concerns. The widespread shift to remote and hybrid learning from 2020 to 2022 appears to have relaxed student norms surrounding in-person attendance, with many continuing to expect flexibility, such as recorded lectures and asynchronous options, even after campuses resumed face-to-face instruction (Weijers et al., 2022; Muresherwa & Nji Bama, 2024). Within this context, the finding that implementation intentions produced a significant and meaningful improvement in attendance strengthens confidence in the robustness of the intervention. The observed effect did not occur in a neutral normative environment, but in one that may have actively discouraged consistent in-person participation.

Practical Implications

The findings show that adding implementation intentions to university teaching methods can be a very effective way to improve student attendance. By encouraging students to plan their attendance in advance, schools can address the common problem of absenteeism, especially in subjects like Principles of Macroeconomics, which may have unique challenges due to perceived difficulty or lecture format. Many traditional approaches to low attendance are reactive, like tracking absences, sending warning emails, or enforcing penalties. These interventions often happen after the issue has started. In contrast, implementation intentions serve as a proactive self-regulation tool. They also offer a practical and affordable solution for colleges dealing with low attendance. Implementing them requires minimal financial investment and time, usually involving a short, structured planning exercise that can fit into current course syllabi, online learning platforms, or orientation sessions.

This proactive quality takes on added significance considering the cultural shifts in student behavior that followed the COVID-19 pandemic. Before remote learning became widespread, consistent attendance was sustained in part by informal social expectations, since showing up was simply assumed. The normalization of remote and hybrid participation appears to have eroded these background pressures, and instructors can no longer count on the same ambient cues to support attendance behavior that they once could (Muresherwa & Nji Bama, 2024; Weijers et al., 2022). Implementation intentions are well suited to fill this gap. Rather than waiting for absenteeism to emerge and then responding to it, the intervention prompts students at the start of the semester to make explicit and concrete plans for attending, effectively asking them to reaffirm a commitment to in person participation before competing habits or expectations have a chance to take hold. For institutions grappling with post pandemic attendance norms, this suggests that implementation intentions offer something more than a low-cost behavioral nudge; they provide a mechanism for actively re-establishing the expectation of attendance at the course level at precisely the moment when that expectation most needs reinforcement.

Limitations

While the findings are encouraging, it is important to acknowledge their specificity to Principles of Macroeconomics classes at the particular institution where the study was conducted. The generalizability of these results to other academic disciplines (e.g., humanities, laboratory sciences), different course formats (e.g., smaller, highly interactive seminars; fully asynchronous online courses), or diverse institutional contexts (e.g., varying student demographics, different academic cultures, or institutional policies regarding attendance) warrants further investigation.

Although the study demonstrated sustained improvements in attendance over the course of a single semester, the long-term sustainability of these effects beyond the intervention period or across subsequent academic years remains an area for future inquiry. While implementation intentions are theorized to contribute to habit formation, it is crucial to determine whether behavioral changes persist without ongoing prompting or reinforcement. The longevity of intervention effects is a common challenge in behavioral science, and understanding this aspect is critical for assessing the ultimate impact on student behavior (Sheeran et al., 2024).

While implementation intentions help with self-regulation issues, they do not directly address systemic or personal problems like unemployment, financial struggles, or mental health issues, which often lead to absenteeism. (Mearman, et al., 2014; Oldfield, et al., 2017; Self, 2012). Recognizing these unmeasured factors shows that, although implementation intentions are a useful tool, they are part of a larger system of student support. Effective attendance strategies usually need a multi-faceted approach that looks at students' overall well-being instead of relying on one solution as a cure-all. Future research should consider these wider contextual and personal factors to give a better understanding of attendance behavior.

Finally, because the study uses a correlational design with a brief survey intervention, the model of the implementation intentions intervention and its effect on class attendance illustrated and described earlier in the paper implies more causal precision than the data can fully support. The model is conceptual and the current design cannot disaggregate the three mediating mechanisms empirically.

CONCLUSION

Although existing studies offer useful insights into class attendance and its effects in educational settings, they do not fully address the specific challenges that students in Economics courses face. This study shows that using implementation intentions as a focused approach can significantly improve attendance rates in this area.

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BIOGRAPHY

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Predicting the WNBA Draft: An Excel-Based Regression Exercise for Undergraduate Students

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ABSTRACT

This paper describes an Excel-based classroom exercise in which undergraduate economics students use Ordinary Least Squares (OLS) regression to predict which NCAA Division I women's basketball players will be selected in the WNBA draft. Using a dataset of 1,673 fourth-year NCAA players from 2013 through 2024, students activate Excel's Data Analysis ToolPak and estimate a linear probability model (LPM) with five intuitive predictors: points, rebounds, assists, and blocks per game, plus a power-conference indicator. They then interpret the regression coefficients and construct a prediction formula to rank-order two specific players from the 2025 draft class. The exercise teaches regression mechanics, coefficient interpretation, and the limitations of linear models for binary outcomes, while leveraging student interest in sports to sustain engagement. Prior research indicates that students have positive engagement with sports data and limited applied econometric projects that relate to their interests. The unique combination of modeling sports data in Excel offers increased educational value to students exposed to this exercise. Question and answer workbooks are available in the linked GitHub repo for instructors to easily adopt for classroom usage.

Keywords: Excel, regression, sports economics, active learning

INTRODUCTION

Teaching regression analysis to undergraduate economics students presents a persistent pedagogical challenge as students learn formulas and the interpretation of output tables yet often struggle to connect these mechanics to substantive decision-making. Sports data offer a well-documented solution to this engagement problem. McMullen (2015) found that 100 percent of students surveyed preferred sports data to traditional textbook examples when learning regression, and Kvam and Sokol (2004) demonstrated that sports contexts improve both motivation and retention of statistical concepts. Research by Patterson et al. (2023) further corroborates these findings, as students provided overwhelmingly positive feedback to a fantasy baseball simulation exercise in Excel. The growing popularity and visibility of the WNBA, which has seen record attendance and media coverage in recent seasons, provides a timely and underexplored context for such exercises and may also help bridge the Excel confidence gap found in female students (Grealis et al., 2024).

This paper describes a structured classroom exercise in which students use Microsoft Excel to build an OLS regression model predicting which NCAA women's basketball players will be drafted into the WNBA. The exercise is designed for an introductory or intermediate economics course in which students have encountered regression but have limited hands-on experience applying it to real data. Students worked with a curated dataset of 1,673 observations spanning twelve draft classes to train an LPM using Excel's Data Analysis ToolPak. Then, they interpreted the resulting coefficients and applied those coefficients to rank two sample players from the 2025 draft class, in addition to adding players of interest from the 2026 WNBA draft class. After ranking, students compared their model's predictions to actual 2025 draft outcomes, generating a natural discussion of model accuracy, omitted variable bias, and the limitations of the LPM. Students also generated hypotheses about 2026 player rankings for the upcoming draft.

The exercise contributes to the pedagogy literature in three ways. First, it fills a gap in the availability of women's sports economics teaching materials, as baseball (McMullen, 2015; Watnik, 1998) and men's basketball (Kvam and Sokol, 2004) are well represented in the pedagogical literature. We are aware of no published classroom exercise using Women's NCAA data to predict WNBA draft outcomes. Second, the exercise provides a practical application of the LPM, a topic often discussed in textbooks but rarely practiced with real data in introductory courses. Third, the prediction-and-evaluation structure aligns with higher-order learning objectives in Bloom's revised taxonomy (Anderson and Krathwohl, 2001), moving students from applying regression mechanics to evaluating and critiquing model performance.

The companion Excel workbooks, linked in the Appendix and available for download on GitHub, contain all data and formulas needed to complete the exercise in a single class session of 50 to 75 minutes. No statistical software beyond Excel is required.

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LITERATURE REVIEW

Sports Data in Economics Education

The use of sports data to teach quantitative methods has a rich history in economics and statistics education. Watnik (1998) introduced a baseball salary prediction exercise for introductory statistics, demonstrating that familiar contexts reduce student anxiety about quantitative analysis. McMullen (2015) extended this approach by having students build multiple regression models predicting MLB team winning percentages, finding that students achieved stronger conceptual understanding than with traditional examples. Kvam and Sokol (2004) developed a series of sports-based statistical exercises covering topics from probability to regression, noting that student engagement increased substantially when abstract concepts were anchored in athletic competition. Patterson et al. (2023) used a fantasy sports draft to teach data literacy and sports economics fundamentals, including regression-based estimation of marginal product, in an undergraduate exercise that provided positive student feedback. These studies share a common finding that students engage more deeply with quantitative methods when the data context is personally meaningful.

Excel as a Teaching Tool

Microsoft Excel remains the most widely accessible analytical tool in undergraduate business and economics education (Peng, 2015). Briand and Hill (2013) demonstrated that Excel-based Monte Carlo simulations can effectively teach econometric concepts that are typically reserved for advanced courses, achieving comparable learning outcomes to dedicated statistical software. Williams (2025) found that integrating Excel exercises into a general education economics course improved both quantitative skills and course satisfaction. The Data Analysis ToolPak, a free Excel add-in, provides regression, correlation, and descriptive statistics functionality sufficient for introductory econometrics without requiring students to learn new software. Holman (2019) made a similar case for spreadsheet-first approaches, arguing that the transparency of cell-level calculations helps students understand what statistical software does behind the scenes. Despite this, research by Mentzer et al. (2024) found spreadsheet tasks to be the lowest self-reported data literacy skill of incoming freshmen, further underlining the importance of active student engagement to assist in the learning of Excel.

The Linear Probability Model in the Classroom

The LPM, in which OLS regression is applied to a binary dependent variable, is a standard topic in undergraduate econometrics (Wooldridge, 2020). Despite its known limitations, including the possibility of predicted probabilities outside the zero-to-one range, the LPM offers two advantages for classroom use. First, it requires only the OLS framework that students have already learned, avoiding the need to introduce maximum likelihood estimation or logistic functions. Second, its coefficients have a direct interpretation as changes in the probability of the outcome for a one-unit change in the predictor, making them more intuitive for introductory students than logistic regression coefficients. Stock and Watson (2020) note that the LPM often provides a reasonable approximation when the goal is prediction rather than structural estimation, particularly when predicted values cluster near the sample mean. The exercise presented here leverages these pedagogical advantages while using the LPM's limitations as a built-in discussion prompt.

The WNBA as a Research and Teaching Context

Research on the WNBA draft remains limited relative to men's professional leagues. Harris and Berri (2015) found that scoring statistics dominated WNBA draft decisions while more comprehensive productivity measures were undervalued, a pattern consistent with findings in the NBA (Berri et al., 2011). The present exercise draws on a larger and more recent dataset than Harris and Berri but simplifies the analysis to a level appropriate for undergraduate students. The WNBA's growth in viewership and cultural prominence makes it a particularly timely teaching context, and the inclusion of women's sports data in economics curricula responds to calls for greater diversity in the examples used to teach quantitative methods (Allgood and Bayer, 2017).

THE EXERCISE

Overview and Learning Objectives

Students receive an Excel workbook containing a questions sheet and a training data sheet. The instructor may download the answer sheet that fills in the question sheet with correct answers and provide it after the assignment due date. The training data tab contains 1,673 NCAA Division I women's basketball players who completed four collegiate seasons between 2013 and 2024, with at least 25 minutes per game (MPG) and 12 points per game (PPG) in their final

season. The training set filters on these variables as players with less than these totals are extremely unlikely to be drafted to the WNBA and thus reduces noise for training. The data contains only their final season statistics as a large majority of WNBA draftees declare for the draft after completing at least four collegiate seasons. Furthermore, NCAA Women's basketball players must complete at least three years to be eligible for the draft. Given the historical small number of players drafted after completion of three seasons with less MPG and PPG than the threshold, we feel the potential for selection bias is small. Without the MPG and PPG threshold, the heavy class imbalance may impose loss of model signal to the additional noise of players that never had a chance to be drafted which may provide spurious model results.

Students run an LPM on the training data, record the coefficients, and use them to predict draft probabilities for specified players in the 2025 WNBA draft. The students can then verify the ranking of these players compared to actual outcomes. Furthermore, the students were asked to evaluate predicted probabilities for two players of their choosing in the 2026 draft class. The exercise can be completed individually or in pairs.

Upon completing the exercise, students were able to: (a) activate and use Excel's Data Analysis ToolPak to run an OLS regression; (b) interpret regression coefficients in the context of an LPM; (c) construct a predicted probability formula using estimated coefficients and observed values; (d) evaluate model performance by comparing the ranking of predicted probabilities to actual outcomes; and (e) identify limitations of the linear probability model, including predictions outside the zero-to-one range and the omission of relevant variables. These objectives span the *Apply*, *Analyze*, and *Evaluate* levels of Bloom's revised taxonomy (Anderson and Krathwohl, 2001).

Data Description

The dataset is constructed from publicly available NCAA Division I women's basketball statistics from 2013-2025 (Her Hoop Stats, n.d.) linked to WNBA draft records. To create a focused and manageable sample, we apply three filters. First, we restrict the sample to players in their fourth NCAA season, as the majority of drafted players complete at least four collegiate years. Second, we require a minimum of 25 minutes per game and 12 points per game in the player's final season, ensuring that only substantive contributors are included and that the model does not pick up too much noise. These thresholds reduce the sample from over 8,000 fourth-year players to approximately 1,800, while retaining over 75 percent of all drafted players in the population. Third, we split the data temporally as the 2013 - 2024 cohorts form the training set, and the 2025 cohort is held out for prediction and evaluation against observed outcomes.

Table 1 describes the five predictor variables and the dependent variable. The predictors were chosen for their intuitive interpretability: four standard box-score statistics that any basketball fan would recognize, points, rebounds, assists, and blocks per game, plus a binary indicator for whether the player competed in a Power Conference (ACC, Big Ten, Big 12, Big East, Pac-12, or SEC). The dependent variable is a binary indicator equal to one if the player was drafted and zero otherwise. The training set has a 15 percent base draft rate, meaning that roughly one in seven players meeting the sample criteria was selected in the WNBA draft.

Table 1: *Variable Descriptions*

Variable	Type	Description
Dependent Variable		
Drafted	Binary (0/1)	1 if player was selected in the WNBA draft
Independent Variables		
PPG	Continuous	Points per game in final NCAA season
RPG	Continuous	Rebounds per game in final NCAA season
APG	Continuous	Assists per game in final NCAA season
BPG	Continuous	Blocks per game in final NCAA season
Power Conf	Binary (0/1)	1 if player competed in ACC, Big Ten, Big 12, Big East, Pac-12, or SEC

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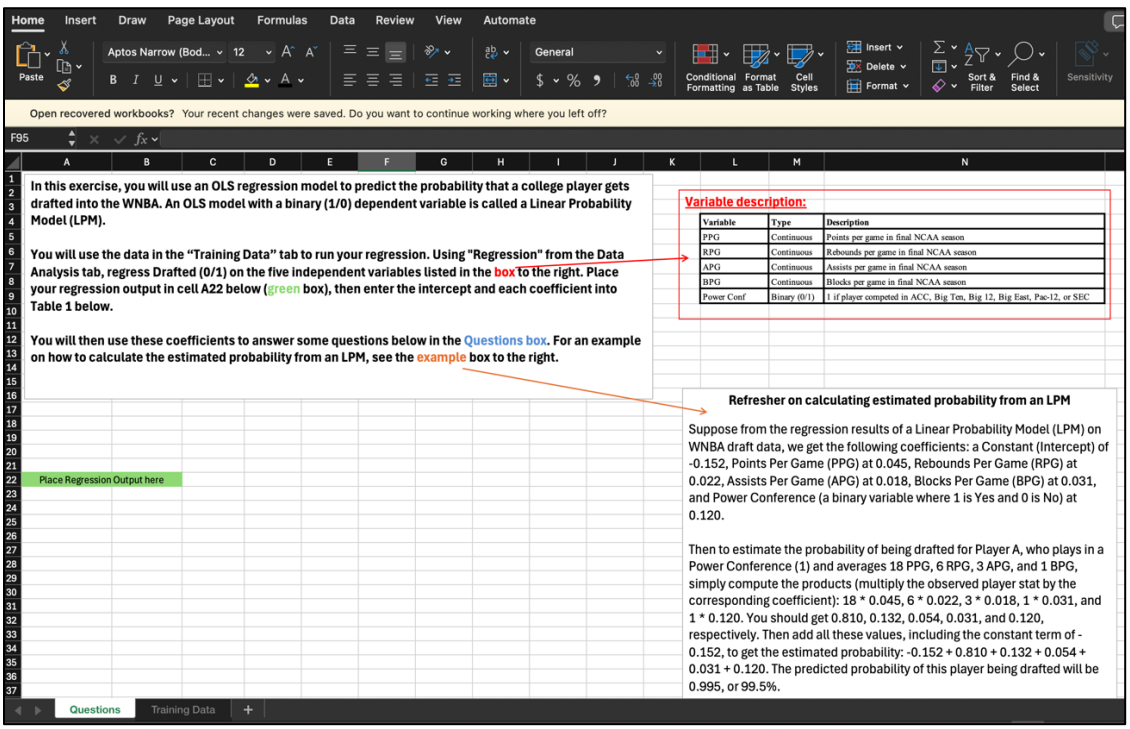
Table 2: *Descriptive Statistics by Draft Status (Training Set, $n = 1{,}673$)*

	PPG	RPG	APG	BPG	Power Conf
All ($n = 1{,}673$)	15.4	5.9	2.5	0.6	0.30
Drafted ($n = 252$)	17.3	6.9	2.9	0.9	0.80
Undrafted ($n = 1{,}421$)	15.1	5.7	2.4	0.5	0.22

Table 2 presents descriptive statistics by draft status. Drafted players averaged 17.3 points, 6.9 rebounds, and 2.9 assists per game compared to 15.1, 5.7, and 2.4 for undrafted players. The starkest difference appears in the Power Conference indicator: 80 percent of drafted players competed in a Power Conference compared to just 22 percent of undrafted players. This contrast foreshadows the large coefficient that Power Conference will receive in the regression and provides a natural teaching moment about the economic concept of signaling in labor markets. Figure 1 below illustrates the workbook that students received as part of the exercise.

Figure 1: Worksheet given to students



Step-by-Step Instructions

Step 1: Enable the Data Analysis ToolPak

Students open the provided Excel workbook and navigate to File, then Options, then Add-Ins. They select Analysis ToolPak, click Go, check the box, and click OK. The Data Analysis button will then appear on the Data tab of the ribbon. If students are using Mac Excel, the ToolPak is accessed through the Tools menu. This is the only setup step required; the instructor may wish to verify that the ToolPak is enabled on classroom computers before the session.

Step 2: Run the OLS Regression

Students click Data, then Data Analysis, and select Regression from the list. In the Regression dialog box, they set the Input Y Range to the Drafted (0/1) column and the Input X Range to the five predictor columns [located in the Training Data worksheet], including headers. They check the Labels box since the first row contains headers, select the output location highlighted in the worksheet, and click OK. Excel produces a standard regression output table with coefficients, standard errors, t-statistics, p-values, and R-squared.

Step 3: Interpret the Coefficients

Students record the intercept and five slope coefficients on the Coefficients tab of the workbook as shown in Table 3. Using the estimated model, students interpret each coefficient as the change in the predicted probability of being drafted associated with a one-unit increase in that variable, holding all other variables constant. For example, if the coefficient on PPG is 0.027, a one-point increase in scoring is associated with a 2.7 percentage point increase in the probability of being drafted. The instructor should draw attention to several notable results. First, the Power Conference coefficient is by far the largest in magnitude, indicating that playing in a major conference is associated with roughly a 36-percentage point increase in draft probability, all else equal. This invites a discussion of whether conference membership causes higher draft selection or instead proxies for unobserved factors such as quality of competition, media exposure, scout access, or high school recruiting. Second, the blocks per game coefficient is the largest among the four box-score statistics, suggesting that shot-blocking ability, a relatively rare skill, carries outsized value in draft decisions. Third, the R-squared is approximately 0.34, meaning the model explains about one-third of the variation in the draft outcome. This invites discussion of omitted variables such as defensive ability, athleticism, team success, and scouting intangibles that are not captured by box-score statistics.

Table 3: *Expected OLS Regression Output*

	(1)	Interpretation
PPG	0.027***	+2.7 pp per point scored
	(0.003)	
RPG	0.011***	+1.1 pp per rebound
	(0.004)	
APG	0.030***	+3.0 pp per assist
	(0.006)	
BPG	0.086***	+8.6 pp per block
	(0.014)	
Power Conf	0.357***	+35.7 pp for Power Conf
	(0.016)	
Intercept	−0.549***	Baseline probability
	(0.041)	
Observations	1,673	
Adj. R^2	0.336	
F-statistic	169.87	

Note. The table presents OLS estimates of the determinants of WNBA draft selection. The dependent variable *Drafted* is a binary indicator equal to one if the player was selected in the WNBA draft. Robust standard errors are reported in parentheses. pp = percentage points. ***, **, and * denote statistical significance at the 1%, 5%, and 10% confidence levels, respectively.

Step 4: Build the Prediction Formula

After entering the six coefficients (intercept plus five independent variables) into the Coefficients tab, students navigate to the questions. Students may reference the refresher on estimated probability from an LPM within the worksheet. They will be reminded of the formula for each player, which computes as Predicted Probability = Intercept + (PPG coefficient × PPG) + (RPG coefficient × RPG) + (APG coefficient × APG) + (BPG coefficient × BPG) + (Power Conf coefficient × Power Conf). Two numeric examples are given for students in addition to the formula. Students then estimate two specific players from the 2025 Draft Class tab, with player NCAA statistics given, and generate their predicted draft ranking.

Step 5: Evaluate the Model

The students evaluate the predicted probability for the two players against their actual 2025 WNBA draft outcomes. The expected result demonstrates that a simple model with only five variables captures a meaningful signal while leaving substantial room for improvement. The room for improvement provides instructors with valuable discussion questions for students to apply modeling skills in an engaged setting.

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Discussion Questions

The following questions can be used to guide classroom discussion or assigned as written responses after the exercise.

(1) Why is the Power Conference coefficient so much larger than the other coefficients? Is this evidence that conferences *cause* players to be drafted, or could something else explain this relationship? Students should consider that Power Conference membership may proxy for the quality of competition, media exposure, scout access, and high school recruiting rather than directly causing higher draft probability. This introduces the concept of omitted variable bias and the distinction between correlation and causation.

(2) The BPG coefficient (0.086) is more than three times as large as the PPG coefficient (0.027), despite points being the most commonly discussed statistic in basketball. Why might blocks carry more predictive weight per unit than points? Students should consider that blocks are a rarer skill as the average player in the sample records only 0.6 blocks per game versus 15.4 points. The scarcity of a skill increases its marginal value. This connects to basic supply and demand reasoning.

(3) Some of the model's predicted probabilities may fall below zero. What does a negative predicted probability mean, and what does this tell us about the linear probability model? This is the classic LPM limitation and motivates the existence of logistic regression for more advanced courses.

(4) Identify players whom the model ranked highly but who were not drafted, and players who were drafted but whom the model ranked lower than expected. What factors might explain these discrepancies? This encourages students to think about variables omitted from the model, such as defensive skills, leadership, injuries, and team-specific positional needs.

(5) Given the rapid adoption of generative AI in academia (Frydenberg et al., 2026), how might a student use a Large Language Model (LLM) as a mentor to improve the predictive power of this Excel exercise? For instance, could an AI tool help identify specific omitted variables, such as defensive win shares or strength of schedule, that are not captured in the standard box score? Research by Patterson et al. (2024) indicates that students adopt generative AI tools for academic productivity when they perceive high performance expectancy and ease of use. This suggests a pedagogical opportunity to bridge the gap between their willingness to use new technology and the rigor required for data analysis. Explaining this to students creates an excellent discussion point on how using AI to brainstorm model extensions requires the student to still understand the underlying regression logic to successfully integrate that new information into modeling through prompting.

IMPLEMENTATION AND ASSESSMENT

The exercise is designed for use in principles of economics, intermediate economics, introductory econometrics, sports economics, or introductory business statistics courses at the undergraduate level. Prerequisites are minimal, as students should have been introduced to the concept of regression, including the interpretation of coefficients and R-squared, though they need not have prior experience running regressions in Excel. In the implementation described here, the instructor spent 10 to 15 minutes introducing the WNBA draft context, the concept of an LPM, and the structure of the workbook. Students then worked for 25 to 35 minutes running the regression, recording coefficients, and generating predictions. The remaining 15 to 25 minutes were devoted to comparing predictions with actual outcomes and discussing the questions above. Assigning students to teams for the exercise may foster additional discussion and promote collaboration skills. Students were asked to individually record the calculated predicted probabilities for the 2025 players into a Blackboard quiz. This assessment and discussion reinforce their active learning by providing feedback on their applied work once the modeling has taken place.

CONCLUSION

This paper describes a structured, Excel-based classroom exercise in which undergraduate economics students build an OLS regression model to predict WNBA draft selections using NCAA basketball statistics. The exercise requires no software beyond Microsoft Excel, can be completed in a single class session, and produces results that are both statistically meaningful and substantively engaging. Students practice regression mechanics, interpret coefficients in a real-world prediction context, and confront the limitations of the linear probability model through direct comparison with actual draft outcomes. The growing visibility of the WNBA and women's sports more broadly provides a timely and motivating context that complements the extensive library of sports-based exercises using men's professional league data. The companion Excel workbooks, containing the full training dataset and answer key, are available for public consumption without charge and are linked in the Appendix.

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APPENDIX

The exercise is available for download in this GitHub repo.

https://github.com/adampattersonct/wnba-draft-predictions-exercise

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Designing AI-Ready Business Courses: Insights from a Large-Scale Student Survey in a Principles of Finance Class

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ABSTRACT

Generative artificial intelligence (AI), defined as large language models capable of producing human-like text, images, and analysis, has entered the undergraduate business classroom regardless of whether instructors have designed their courses around it. This paper reports findings from a survey of 980 undergraduate business students at a large private university, documenting near-universal adoption of generative AI, high-frequency usage for academic tasks, and a strong belief that AI enhances productivity and the speed of work. Students rate their business courses as only moderately adequate in preparing them for AI-enabled professional work, while formal AI coursework shows heightened awareness of AI's workforce implications, suggesting that structured AI education adds value. We draw on these findings to propose five curricular changes that business programs can implement to close the gap between how students use generative AI and how their formal education prepares them to apply AI in the real world.

Keywords: generative AI, business education innovation, curriculum design, student attitudes, AI literacy, course design

INTRODUCTION

Undergraduate business students use generative AI. They use it for writing assignments, financial analysis problems, case study preparation, and career research. Most students use it weekly or more. The question now facing business faculty is how to design courses that teach critical AI thinking. These courses should develop the professional judgment, ethical reasoning, and critical evaluation skills that distinguish an effective AI user from one who simply accepts whatever the system outputs.

This paper addresses that question directly by reporting evidence from a large-scale survey of what students really do with generative AI, what they believe it will do to their careers, and where they feel their formal education is falling short. The findings provide a data-driven foundation for curriculum decisions that faculty and program directors can make right now.

The data come from 980 undergraduate students at a private business school surveyed in spring 2025 in the western United States. The picture that emerges is clear: generative AI is already deeply entrenched in students' work. More than 70 percent of students use AI for academic work daily or several times per week. Nearly all of them believe AI increases their productivity. A majority acknowledge that AI poses a meaningful threat to entry-level jobs in their intended fields. However, most also believe they will adapt successfully, and they want their courses to prepare them to do so.

The intent of this paper is not to debate whether to permit or prohibit generative AI in business courses. Rather, based on the data, this paper proposes five concrete principles for AI-integrated course design. The data demonstrate that the productive question for business education is how to help students use generative AI in ways that build professional competence and encourage critical thinking about their AI usage.

BACKGROUND AND LITERATURE REVIEW

Generative AI's Arrival in Business Education

The release of ChatGPT in late 2022 marked a turning point for business education unmatched by any prior educational technology. Unlike earlier digital tools, large language models can perform much of the cognitive work that business courses teach: drafting financial memos, analyzing data, constructing arguments, and synthesizing research. This technology is already affecting the future jobs of these business students. Brynjolfsson et al. (2024) document a 16 percent decline in job postings for entry-level roles in AI-exposed business fields since late 2022. Additional analysis indicates that just over 46 percent of jobs could have more than half their tasks affected, including data cleaning, report drafting, and preliminary financial modeling (Eloundou et al., 2024).

These labor market shifts change what business education should deliver in an AI world. Research demonstrates that prompt engineering (the ability to query AI systems precisely and evaluate their outputs critically) is among the most valued skills across business roles (Alekseeva et al., 2021; Stephany & Teutloff, 2023). Recent literature documents significant wage premiums for workers with AI-complementary skills, indicating that proficiency in generative AI has become essential for the next generation of business professionals.

Student Perspectives: Adoption, Optimism, and the Skills Gap

Research on student attitudes toward generative AI consistently documents simultaneous high adoption and an ambivalent, but generally optimistic relationship with the technology. Breese et al. (2024) find that more than 60 percent of students harbor concerns about job displacement related to AI, yet usage rates are nearly universal among college-age populations. The IMF (2024) reports that college-educated workers and current college students adapt to AI-exposed work at higher rates than any other demographic group, suggesting that education correlates with AI adaptability.

Chan and Colloton (2024) offer an important reframing of high student AI usage: instead of treating it as academic dishonesty, they argue that students are practicing the oversight and refinement behaviors they expect to need in their careers. On this view, students using AI to complete assignments are engaged in a form of professional simulation, developing the co-piloting habits that AI-augmented workplaces will require. Additionally, research has shown that AI significantly boosts performance on well-structured tasks while degrading performance on tasks requiring nuanced contextual judgment (Dell'Acqua et al., 2023). This interpretation and these findings have direct consequences for how faculty should design and evaluate student work.

Despite high usage, institutional preparation for AI-enabled professional work varies. Bugawa et al. (2025) document a gap between employer demand for AI-ready graduates and students' reported sense of academic preparedness. Without faculty guidance on this frontier, students using generative AI independently risk over-reliance on a technology whose limitations they do not fully understand.

Theoretical Framework: TAM and UTAUT

Davis (1989) introduced the Technology Acceptance Model (TAM), which holds that individuals adopt a technology when they perceive it as useful and easy to use. Generative AI scores high on both dimensions among students, predicting strong adoption. Venkatesh et al. (2003) extended this work in the Unified Theory of Acceptance and Use of Technology (UTAUT), adding social influence and facilitating conditions as determinants. In the AI context, facilitating conditions in many universities remain weak, as very few programs offer structured AI training, consistent assignment design guidance, or explicit criteria for appropriate AI use. The implication from UTAUT is that improving facilitating conditions through clear AI policies, structured instruction, and purposeful assignment design should accelerate effective AI adoption.

From Prohibition to Pedagogy

With the initial launch of generative AI, many faculty favored a prohibitionist response, which Cotton et al. (2024) argue is both futile and professionally irresponsible. Their research documents that restricting AI use alienates students and divides the classroom from the workplace. They advocate for authentic assessment, evaluating students on their ability to use AI to solve complex, open-ended problems. This pedagogical shift requires faculty to redesign assessments fundamentally, instead of the current practice of simply adding language to syllabi about AI use. This aligns well with our findings and sets a foundation for an AI-focused curriculum to best prepare students for the workforce.

METHODOLOGY

Since 2016, Brau, et al. (2016, 2017, 2019, 2020a,b,c, 2021a,b, 2022, 2024) have used similar survey and empirical methods to test various topics of business education. This paper's methodology follows closely those of this literature thread. A Qualtrics survey was administered to undergraduate students enrolled in a principles of finance course at a large private university in the western United States once during spring semester 2025. The survey instrument included sections on generative AI attitudes and usage, AI's impact on student work, and demographic and background characteristics. Institutional Review Board approval was obtained prior to data collection, and participation was voluntary.

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Two embedded attention checks were included to identify and remove respondents not paying proper attention to survey items. Students who failed the attention checks were removed, yielding a final analytical sample of 980 respondents (original sample: 1,047 respondents; 93.6 percent retention rate). The survey covers: frequency of generative AI use for homework, employment, and personal activities; attitude items on productivity, creativity, societal benefits, AI as a tool, and career threat; a ten-point scale on how well business courses prepare students for AI use in professional contexts; perceived impact of AI on four dimensions of work quality using a seven-point scale; and rankings of seven categories of AI-related risk. The ten-point scale was deliberately chosen to provide greater sensitivity in measuring the gradient of students' perceived preparedness, allowing finer distinctions than a 5- or 7-point scale would afford.

The sample is 67.7 percent male and 32.2 percent female, reflecting the gender composition of the host institution's business program. By academic standing, 15.8 percent are freshmen, 39.6 percent are sophomores, 20.0 percent are juniors, and 23.3 percent are seniors, with 1.2 percent in a fifth year or beyond. Mean high school GPA is 3.86 and mean university GPA is 3.72, indicating an academically strong sample. Sample characteristics are presented in Table 1.

Table 1: Sample Characteristics

Variable	N	Mean / %	SD
Panel A: Sample Characteristics			
Male	980	67.7%	
Freshman	980	15.8%	
Sophomore	980	39.6%	
Junior / Senior	980	43.3%	
High School GPA	960	3.86	0.20
University GPA	962	3.72	0.30
Took Formal AI Course	971	11.7%	

Note. The sample reflects the gender and academic-year composition of the host institution's business program.

FINDINGS

Descriptive statistics for key AI attitude and usage variables are presented in Table 2; perceived AI impact on work quality is presented in Table 3. Table 4 presents the Pearson correlation matrix among all key AI variables, providing a map of the empirical relationships underlying the five principles developed in the Teaching Implications section. Table 5 shows the student rankings of different AI risk categories; Table 6 reports the multivariate determinants of key AI outcomes. Table 7 highlights the job displacement concern, and Table 8 compares two group contrasts: AI-course takers vs non-course takers and freshmen vs advanced students.

AI Adoption Is Effectively Universal

Among the 980 students in the sample, 99.4 percent had used generative AI at least once. The more consequential statistics for faculty are the usage frequencies: 35.9 percent use AI for coursework every day, and another 34.6 percent use it several times per week. Combined, 70.5 percent of students are using generative AI for academic work at least several times per week. Only 1.9 percent report never using AI for homework. As Table 4 shows, AI usage frequency is significantly and positively correlated with all positive AI attitude variables (all $r \geq 0.18$, $p < 0.001$), confirming that frequent users develop stronger and more confident AI orientations.

For faculty who are still designing courses as if generative AI is optional or exceptional, this finding reframes the baseline. Assignments that require students to work without generative AI must now be treated as the exception, as many students will likely navigate around the restriction. Course design built on this outdated baseline most likely produces work that does not reflect how current students actually learn or how professionals will actually work.

Table 2: AI Usage and Attitudes

Variable	N	Mean / %	SD
Panel A: AI Usage Frequency			
AI for homework: daily or several times/week	980	70.5%	
Never uses AI for homework	980	1.9%	
Panel B: AI Attitudes (1-5 Likert; 1=Strongly Disagree, 5=Strongly Agree)			
AI is a tool to be used, not avoided	980	4.60	0.64
AI increases my productivity	980	4.46	0.70
AI increases my creativity	980	3.78	1.11
AI benefits to society outweigh risks	980	3.90	0.90
AI threatens jobs in my intended field	970	3.35	1.05
Panel C: Career and Curriculum Perceptions			
Business courses prepare me for AI use (0-10)	968	5.09	2.64
AI will net create more job opportunities (%)	976	71.5%	

Note. All Panel B items use a 1=Strongly Disagree to 5=Strongly Agree scale. All Likert items differ significantly from the scale midpoint (all $p < 0.001$). The job threat item (M=3.35) differs from the midpoint of 3: $t(969)=10.3$, $p < 0.001$.

Table 3: Perceived AI Impact on Work Quality

Variable	N	Mean	SD
Speed of work	974	6.38	0.86
Quality of work	974	5.36	1.24
Problem-solving capability	971	5.27	1.34
Ethical decision-making	974	4.45	1.16

Note. Items use a 7-point scale (1=Very Negatively Affected, 7=Very Positively Affected; midpoint=4). All items differ from midpoint: Speed $t(973)=86.7$; Quality $t(973)=34.3$; Problem-solving $t(970)=29.6$; Ethical DM $t(973)=12.1$ (all $p < 0.001$).

Table 4: Pearson Correlation Matrix of Key AI Variables

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) AI Usage Freq.	1.00										
(2) AI = Tool	0.33***	1.00									
(3) Productivity	0.42***	0.65***	1.00								
(4) Creativity	0.18***	0.40***	0.52***	1.00							
(5) Benefits > Risk	0.29***	0.47***	0.54***	0.51***	1.00						
(6) Job Threat	-0.02	-0.01	0.04	-0.02	-0.02	1.00					
(7) Course Prep	0.06	0.09**	0.10**	0.10**	0.07*	0.00	1.00				
(8) Speed of Work	0.29***	0.24***	0.29***	0.13***	0.16***	0.07*	0.01	1.00			
(9) Quality of Work	0.26***	0.28***	0.38***	0.35***	0.32***	0.04	0.11***	0.32***	1.00		
(10) Prob-Solving	0.19***	0.26***	0.32***	0.36***	0.31***	0.03	0.09**	0.25***	0.51***	1.00	
(11) Ethical DM	0.14***	0.22***	0.24***	0.32***	0.28***	0.01	0.05	0.12***	0.42***	0.38***	1.00

Note. N ranges from 941 to 980 due to listwise deletion. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$ (two-tailed). Variables: (1) AI usage frequency for homework (1-7); (2)-(7) use 1-5 Likert scale; (8)-(11) use 1-7 impact scale.

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Table 5: Student Rankings of AI Risk Categories (N = 941)

Risk Category	Mean Rank	SD	% Ranked #1	% Ranked Top 3
Ethical risks (bias, fairness, transparency, privacy)	2.79	1.59	24.9%	71.4%
Social risks	3.13	1.68	21.5%	60.0%
Economic risks (job displacement)	3.23	2.12	32.9%	58.1%
Legal risks	3.83	1.57	6.3%	43.8%
Technical risks	4.29	1.81	7.3%	34.6%
Geopolitical risks	4.78	1.68	4.1%	23.7%
Environmental risks	5.96	1.50	3.0%	8.3%

Note. Students ranked seven categories from 1 (most concerning) to 7 (least concerning); lower mean rank indicates greater concern. Chi-square analysis confirmed that first-place rankings are not equally distributed across categories: $\chi^2(6) = 563.2$, $p < 0.001$. Economic risks received the highest share of #1 rankings (32.9%), though ethical risks ranked first on mean rank (2.79). 39 students did not respond, resulting in the N = 941.

Students Hold a Strong Augmentation Mindset

Among the attitude items in Table 2, Panel B, the most striking finding is the strength of agreement that generative AI is more of a tool than a threat. It is the highest-ranking item, as 95 percent of students agree or strongly agree that AI is a tool to be used, not avoided ($M = 4.60$, $SD = 0.64$, $t(979) = 78.2$, $p < 0.001$ vs. midpoint of 3). Productivity beliefs are nearly as strong: 91.4 percent agree that AI increases their productivity ($M = 4.46$, $SD = 0.70$, $t(979) = 65.3$, $p < 0.001$). As the correlation matrix in Table 4 shows, productivity belief correlates strongly with the tool attitude item ($r = 0.65$, $p < 0.001$) and with all three work-quality impact variables (quality: $r = 0.38$, $p < 0.001$; problem-solving: $r = 0.32$, $p < 0.001$; speed: $r = 0.29$, $p < 0.001$), confirming that these beliefs hang together; students who see AI as a tool also tend to find it productive and good for their work quality.

Agreement on creativity, however, is notably weaker: only 63.5 percent agree that AI increases their creativity ($M = 3.78$, $SD = 1.11$), well below the tool and productivity items. Students are confident that AI makes them more productive, but far less certain that it makes them more creative. This gap points to creative and critical work as the distinctively human contribution course designers can build around, while generative AI handles routine tasks.

The perceived work speed findings reinforce this picture. Students rate AI's impact on the speed of their work at 6.38 on a seven-point scale ($SD = 0.86$), the highest-rated item in the entire survey ($t(973) = 86.7$, $p < 0.001$ vs. midpoint of 4). Impact on work quality is also rated highly at 5.36 out of 7 ($SD = 1.24$). Students are confident that AI helps improve speed, quality, and problem-solving capability. Ethical decision-making sits slightly above the midpoint of 4, signifying that students are more divided about whether it will positively or negatively affect ethical decision-making.

Job Threat Awareness Without Paralysis

A majority of students, 52.5 percent, agree or strongly agree that AI threatens to replace jobs in their intended career fields ($M = 3.35$, $SD = 1.05$, $t(969) = 10.3$, $p < 0.001$ vs. midpoint of 3). The correlation matrix in Table 4 reveals that job threat shows essentially zero correlation with all AI attitude and work-quality variables (all $|r| \leq 0.07$). This important insight indicates that concern about career displacement is not associated with negative attitudes toward AI or lower perceived AI performance. Students who believe AI threatens jobs also do not believe AI is less useful. The data suggest that job threat concern is driven by a distinct set of factors examined in the multivariate analysis below. This level of job threat awareness is substantive, though the threat is conceptualized at the industry level rather than as a personal career threat.

When asked whether AI will primarily create or reduce job opportunities in their intended field, 71.5 percent believe AI will net create more opportunities. This confirms the dual narrative; students acknowledge industry-level displacement while retaining personal optimism.

The Curriculum Preparation Gap

Students rate their business courses at 5.09 out of 10 in terms of preparing them to use generative AI for professional challenges (SD = 2.64). This moderate score indicates substantial variation: some courses have integrated AI meaningfully while many have not. The correlation between course preparation scores and perceived work quality improvements is modest but positive ($r = 0.11$, $p < 0.001$), indicating that students whose courses address AI more explicitly report somewhat greater AI-driven improvements in their work quality. With a sample of 968 respondents, the standard error of the correlation is approximately 0.032, and the correlation differs significantly from zero at $p < 0.001$. Given the magnitude of wage premiums for AI skills documented in peer-reviewed labor economics research (Alekseeva et al., 2021; Stephany & Teutloff, 2023), even modest curricular AI preparation improvements represent a meaningful return on investment.

Ethical Concerns Rank First Among Risk Categories

Students ranked seven categories of AI-related risk from most to least concerning. Although economic risks drew the largest share of outright first-place rankings (32.9 percent), ethical risks rank first on mean concern (2.79) and appear in the top three for 71.4 percent of students, the widest share of any category. Ethical risks are followed by social risks (3.13), economic risks including job displacement (3.23), legal risks (3.83), technical risks (4.29), geopolitical risks (4.78), and environmental risks (5.96). The rank order was derived from the distribution of individual student rankings across all 941 respondents; chi-square tests confirmed that first-place rankings are not equally distributed across the seven categories ($\chi^2(6) = 563.2$, $p < 0.001$).

For business education, the prominence of ethical concerns is applicable and useful. Business courses that include explicit ethical analysis of AI applications, whether in financial underwriting, hiring systems, or customer profiling, will connect with concerns students already hold. This will help build the framework for responsible AI leadership that employers increasingly seek out and even require.

Multivariate Determinants of AI-Related Outcomes

To isolate the independent effects of academic experience and formal AI coursework on key outcomes, Table 6 presents three OLS regression models with controls for academic standing, whether the student has taken a formal AI course, gender, university GPA, and AI usage frequency.

Table 6: OLS Regression Results: Multivariate Determinants of Key AI Outcomes

Independent Variable	Model 1 AI Job Threat	Model 2 Course Preparation	Model 3 AI Productivity
Coefficients reported as b (SE)			
Academic Standing	-0.214*** (0.036)	0.131 (0.090)	0.028 (0.022)
AI Course Taken	0.440*** (0.114)	1.320*** (0.286)	-0.097 (0.069)
Male	0.083 (0.075)	-0.291 (0.188)	0.189*** (0.045)
University GPA	-0.000 (0.030)	0.056 (0.075)	0.024 (0.018)
AI Usage Frequency	-0.014 (0.023)	0.078 (0.057)	0.196*** (0.014)
N	950	949	959
R^2	0.048	0.043	0.194
Adjusted R^2	0.043	0.038	0.190
F-statistic	9.45***	8.51***	45.89***

Note. Models estimated via OLS with listwise deletion. Unstandardized coefficients with standard errors in parentheses. Academic Standing coded 1=Freshman to 5=Fifth year or beyond. AI Course Taken = 1 if student has taken a formal AI course, 0 otherwise. Male = 1 if male, 0 otherwise. AI Usage Frequency coded 1=Never to 7=Daily. Dependent variables: Model 1 = AI job threat concern (1-5); Model 2 = course preparation for AI (0-10); Model 3 = AI productivity belief (1-5). *** $p < 0.001$.

Model 1 examines determinants of job threat concern. Holding other factors constant, academic standing is significantly negatively associated with job threat ($b = -0.214$, $p < 0.001$): each additional year of academic progress is associated with approximately 0.21 points lower job threat concern on the five-point scale. Conversely, having taken a formal AI course is associated with significantly higher job threat concern ($b = 0.440$, $p < 0.001$), even after

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controlling for academic standing, gender, GPA, and AI usage. This finding confirms that the AI-course effect represents students becoming more aware of the risks of AI and becoming more experienced with professional expectations.

Model 2 examines determinants of perceived course preparation. The single strongest predictor is having taken a formal AI course ($b = 1.320$, $p < 0.001$). Students with formal AI coursework rate their preparation to use AI in professional settings 1.32 points higher on the ten-point scale, controlling for all other factors. Neither academic standing, gender, GPA, nor AI usage frequency reaches statistical significance, underscoring that structured AI education is the mechanism linking coursework to better perceived preparation.

Model 3 examines determinants of AI productivity belief. The dominant predictor is AI usage frequency ($b = 0.196$, $p < 0.001$): each one-unit increase in usage frequency (on the seven-point scale) is associated with a 0.196-point increase in productivity belief. The model's R^2 of 0.194 indicates that AI usage, combined with modest demographic controls, accounts for 19 percent of the variance in productivity beliefs. This is a substantial proportion for attitudinal data of this type. Gender is also significant ($b = 0.189$, $p < 0.001$), with male students reporting modestly stronger productivity beliefs.

Table 7: Distribution of Job Displacement Concern by AI Coursework Experience

Response	AI Course (n = 111)	No AI Course (n = 850)
1 – Strongly Disagree	5.4%	4.8%
2 – Disagree	16.2%	18.5%
3 – Neither	19.8%	24.9%
4 – Agree	39.6%	42.4%
5 – Strongly Agree	18.9%	9.4%

Note. Item: "AI threatens jobs in my intended field" (1–5 Likert scale). $\chi^2(4) = 10.01$, $p = .040$, Cramér's V = 0.102. Group *n*s reflect valid responses to the job-threat item. Percentages may not sum to 100 due to rounding.

A chi-square test indicates that job displacement concern is distributed differently across students with and without formal AI coursework ($\chi^2(4) = 10.01$, $p = .040$, Cramér's V = 0.102), with the difference concentrated in the strongly-agree category (18.9 versus 9.4 percent, a modest 21 of 111 course takers). The raw mean difference is small (3.50 versus 3.33) but understates the coursework effect that Model 1 isolates once academic standing is held constant ($b = 0.440$, $p < .001$). Formal AI coursework does not reduce displacement concern so much as calibrate it, though the cross-sectional design cannot establish whether coursework raises awareness or whether more concerned students select into it.

Group Differences by AI Experience and Academic Standing

Table 8 compares key outcome variables between students who have and have not taken a formal AI course (Panel A) and between freshmen and advanced students (i.e., juniors, seniors, and fifth-year students) (Panel B).

Panel A reveals that the most consequential difference between AI-course takers and non-takers is in perceived course preparation: 6.38 versus 4.91, $t(960) = 5.63$, $p < 0.001$, Cohen's $d = 0.57$. This medium-to-large effect size indicates that formal AI coursework is the primary lever available to programs seeking to close the preparation gap for students entering the workforce. No other outcome variable differs significantly between groups, indicating that general AI attitudes, productivity beliefs, and work-quality perceptions are uniformly positive across the full sample regardless of formal AI coursework. This shows the opportunity for faculty, as the value formal coursework adds is preparation.

Panel B reveals that freshmen report significantly higher job threat concern than advanced students: 3.63 versus 3.16, $t(584) = 4.79$, $p < 0.001$, $d = 0.45$. This medium effect suggests that advancing through the curriculum and other college classes is associated with more calibrated, lower-anxiety assessments of AI's career implications. Advanced students also rate their course preparation significantly higher than freshmen: 5.38 versus 4.49, $t(580) = -3.51$, $p < 0.001$, $d = 0.33$. Finally, advanced students perceive AI's impact on work speed more positively than freshmen: 6.47 versus 6.29, $t(585) = -2.35$, $p = 0.019$, $d = 0.21$. Together, these findings demonstrate that AI experience accumulated through coursework, academic progression, and specific AI preparation produces measurable, statistically significant improvements in the outcomes that the five principles are designed to accelerate.

Table 8: Group Comparison Analysis: AI Course Takers vs. Non-Takers and Freshmen vs. Advanced Students

Outcome Variable	Group 1 M (SD)	Group 2 M (SD)	t	d
Panel A: AI Course Takers (n = 114) vs. Non-Takers (n = 857)				
AI Job Threat (1–5)	3.50 (1.14)	3.33 (1.03)	1.65	0.16
Course Preparation (0–10)	6.38 (2.58)	4.91 (2.60)	5.63***	0.57
AI Productivity (1–5)	4.46 (0.75)	4.47 (0.69)	-0.14	0.01
AI Creativity (1–5)	3.65 (1.11)	3.80 (1.11)	-1.33	0.13
Ethical Risk Rank (1–7)	2.67 (1.52)	2.81 (1.60)	-0.86	0.09
Speed of Work (1–7)	6.45 (0.85)	6.38 (0.84)	0.75	0.07
Quality of Work (1–7)	5.52 (1.26)	5.34 (1.23)	1.41	0.14
Panel B: Freshmen (n = 155) vs. Advanced Students (n = 431)				
AI Job Threat (1–5)	3.63 (1.03)	3.16 (1.07)	4.79***	0.45
Course Preparation (0–10)	4.49 (2.69)	5.38 (2.71)	-3.51***	0.33
AI Productivity (1–5)	4.44 (0.71)	4.44 (0.73)	-0.09	0.01
AI Creativity (1–5)	3.76 (1.13)	3.75 (1.14)	0.15	0.01
Ethical Risk Rank (1–7)	2.99 (1.56)	2.74 (1.58)	1.65	0.16
Speed of Work (1–7)	6.29 (0.91)	6.47 (0.80)	-2.35*	0.21
Quality of Work (1–7)	5.37 (1.26)	5.37 (1.23)	0.00	0.00

Note. Means reported with standard deviations in parentheses. t = independent-samples t-test. d = Cohen's d effect size. Ethical Risk Rank uses 1-7 scale where 1 = most concerning; lower scores indicate greater ethical concern. Advanced students are juniors, seniors, and fifth-year students. *** $p < 0.001$, * $p < 0.05$.

TEACHING IMPLICATIONS: FIVE PRINCIPLES FOR AI-INTEGRATED BUSINESS COURSES

The findings support five principles for redesigning business courses to develop graduates who use generative AI competently and responsibly. Each principle is grounded in empirical evidence from the statistical analyses presented above.

Principle 1: Replace Prohibition with Structured Integration

The data make a strong case that attempting to prohibit generative AI use is counterproductive and will likely hurt students' career potential and AI use abilities in the long run. When 99.4 percent of students have used AI, and 70.5 percent use it daily or several times a week for coursework, prohibition will not prevent AI use, but it may remove faculty guidance from it. The multivariate analysis (Table 6, Model 2) demonstrates that formal AI coursework produces a 1.32-point increase in perceived course preparation, even controlling for academic standing, GPA, and general AI usage, confirming that structured integration drives better preparation outcomes. The group comparison (Table 8, Panel A) shows a corresponding medium-to-large effect size (d = 0.57) in the preparation gap between AI-course takers and non-takers.

Structured integration begins with a clear, specific AI use policy in each syllabus. The policy should distinguish between appropriate assistance, such as using AI to draft an outline or check calculations, and inappropriate substitution, such as submitting AI-generated analysis as one's own without review or critical engagement. Faculty who define these boundaries explicitly give students the professional scaffolding that informal AI use lacks, which is the same structured exposure that separates prepared students from their peers.

Principle 2: Design for the Human Contribution

Students see generative AI as a strong accelerator but a weak creative partner. They rate its impact on speed at the top of the 7-point scale items (6.38 out of 7) but rate its impact on creativity as the lowest of the positive 5-point scale items (3.78 out of 5). This contrast points to where faculty should concentrate their assessment. The OLS results (Table 6, Model 3) confirm that AI usage frequency is the dominant driver of productivity beliefs ($b = 0.196$, $p < 0.001$), while the correlation matrix (Table 4) reveals that speed of work has the weakest association with course

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preparation ($r = 0.01$, n.s.), whereas quality of work and problem-solving capability show significant positive correlations with course preparation ($r = 0.11$ and 0.09, $p < 0.001$ and $p < 0.01$, respectively). This pattern suggests that the human contributions of critical evaluation, problem-solving, and quality judgment are precisely the skills that structured coursework most effectively develops.

Importantly, students should be expected to understand how generative AI arrives at its outputs, ask critical questions about the analysis, and interpret results in context. This human contribution is essential: it prevents over-reliance on artificial outputs and helps students develop the judgment they will need in their future careers. Dell'Acqua et al. (2023), Cotton et al. (2024), and other research point to the necessity for students to understand and interpret AI output so they can ask good questions about the output, identify its limitations, and take responsibility for its application.

Principle 3: Build Prompt Engineering as a Learning Outcome

Prompt engineering, the skill of querying AI systems precisely and evaluating their outputs critically, is among the most valued and compensated skills in business (Alekseeva et al., 2021; Stephany & Teutloff, 2023). The regression results (Table 6, Model 2) demonstrate that formal AI coursework is the single statistically significant predictor of course preparation, with AI usage frequency, GPA, and academic standing all falling short of significance. This suggests that deliberately teaching students how to query AI effectively and evaluate its outputs produces preparation benefits that informal AI use alone cannot replicate. Business courses can develop this skill by assigning structured AI-querying exercises, evaluating the quality of prompts students write, and requiring students to compare outputs across prompting strategies.

Principle 4: Integrate AI Ethics into Every Business Discipline

Students rank ethical AI risks first by mean rank (2.79, where 1 = most concerning), above economic, social, legal, technical, geopolitical, and environmental risks. Because this ordering aggregates all 941 respondents' rankings, it reflects breadth of concern more than consensus: ethical risks appear in the top three for 71.4 percent of students, the widest share of any category, even though economic risks drew more outright first-place votes (32.9 versus 24.9 percent). A chi-square test confirms the rankings are far from uniformly distributed ($\chi^2(6) = 563.2$, $p < 0.001$), and the priority on ethics differs little between AI-course takers and non-takers (Table 8, Panel A: 2.67 vs. 2.81, $d = 0.09$), indicating it is broadly held. Business faculty who include AI ethics cases are connecting with a concern students already hold. Every business discipline could offer concrete applications: algorithmic credit scoring in finance, ad-targeting in marketing, hiring algorithms in management, and supply chain traceability in operations.

Principle 5: Use Formal AI Coursework to Calibrate Risk Awareness

The regression results (Table 6, Model 1) show that having taken a formal AI course is associated with significantly higher job threat concern ($b = 0.440$, $p < 0.001$) even after controlling for academic standing, which is itself significantly negatively associated with job threat ($b = -0.214$, $p < 0.001$). This two-sided pattern that AI education sharpens calibration while academic experience reduces anxiety is exactly what the principle rests on. The group comparison (Table 8, Panel B) confirms the academic standing effect: freshmen report 0.47 points higher job threat than advanced students ($d = 0.45$, $p < 0.001$), demonstrating that time in the program is itself a form of AI familiarity that moderates displacement fear.

Business programs that offer at least one AI-focused module, covering AI capabilities, limitations, ethical dimensions, and workforce implications, should produce graduates better equipped to navigate an AI-focused future than those who leave campus without that explicit foundation.

LIMITATIONS

Some limitations shape the interpretation of these findings. The sample comes from a single institution with distinctive characteristics. These characteristics may produce AI attitudes and usage patterns that differ from those at public universities, community colleges, or institutions with more diverse student populations. Faculty at other types of institutions should consider whether the magnitudes of the effects reported here apply in their specific context, while the directional findings are likely to be broadly applicable.

The survey's cross-sectional design prevents causal inference. Students who took AI courses may have self-selected into those courses based on prior AI interest or concern, which would produce the observed correlation without implying that the course caused the anxiety. Longitudinal or experimental designs would more cleanly identify causal effects of AI-integrated coursework on student attitudes and outcomes. The regression models presented here explain

modest proportions of outcome variance (R^2 = 4.3-4.8 percent for the attitudinal models, 19 percent for productivity belief), indicating that additional factors beyond those measured in this survey shape student AI orientations.

Self-report measures of AI usage and work quality improvement are subject to social desirability bias. Students may overstate their AI usage if it is culturally normalized at their institution or understate it if they perceive institutional disapproval. However, the strength of the findings, such as 70 percent of students reporting high-frequency AI use, makes it unlikely that social desirability accounts for the primary result.

CONCLUSION

The evidence presented here converges on a clear conclusion: undergraduate business students have already integrated generative AI into their academic and professional workflows, they view it as a productivity asset, they are aware of but not paralyzed by its career implications, and they want their courses to prepare them to use it better. The curriculum has not caught up with the student.

Closing this gap should not require abandoning the foundational content of business education. Financial analysis, strategic management, marketing principles, and accounting fundamentals remain essential. What changes is how students are asked to produce and demonstrate mastery of these subjects, and whether their coursework explicitly develops the judgment, ethics, and AI-direction skills that are necessary for an AI-focused future. The five principles presented here offer a concrete starting point for faculty who are ready to make that shift, each grounded in the multivariate statistical evidence presented above. The OLS regressions confirm that formal AI coursework independently predicts both higher course preparation scores ($b = 1.320$, $p < 0.001$) and more calibrated job threat awareness ($b = 0.440$, $p < 0.001$), while controlling for academic standing, gender, GPA, and AI usage frequency. The group comparison analysis confirms that these effects are substantively meaningful and that AI-course takers feel nearly one and a half scale points better prepared than non-takers ($d = 0.57$), and freshmen report nearly half a standard deviation higher job anxiety than their advanced peers ($d = 0.45$). Taken in the aggregate, our analysis and results provide both analytical and prescriptive findings for faculty adapting their courses to AI.

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What Do Business Students Think About General Education? Evidence from a Large-Scale Survey

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ABSTRACT
This paper examines undergraduate business students' attitudes toward general education (GE) requirements at a large private university. Using survey data from 977 students, we document an ambivalent but coherent pattern: students report mild enjoyment of GE classes and acknowledge their broad importance yet strongly prefer that most categories be made optional. Skill-building courses in writing, quantitative reasoning, and oral communication are rated most worthwhile and best-fulfilling their stated purposes; humanities and natural science requirements are rated least valuable and most favored for optional status. OLS regression shows associations wherein male students and upper-division students hold less favorable GE attitudes, while higher-GPA students and more politically liberal students are more supportive. These findings offer data-driven guidance for administrators weighing GE curriculum reform: skills-oriented courses already enjoy student legitimacy; it is the breadth requirements that need clearer value articulation.

Keywords: general education, curriculum reform, student attitudes, course requirements, business education

INTRODUCTION

General education requirements form the backbone of undergraduate curricula at most American universities, yet they frequently generate ambivalence or resistance from students who view them as diversions from their chosen major. Business programs face this tension acutely: students arrive with professional career goals and often perceive breadth requirements as barriers rather than bridges. Understanding what students actually think about GE, and which categories they find most and least valuable, provides administrators and faculty with actionable intelligence for curriculum design.

This paper addresses that gap by reporting large-scale survey evidence on GE attitudes from 977 undergraduate business students at a private university in the western United States. The data reveal a consistent and somewhat counterintuitive finding: students do not uniformly reject GE. They distinguish meaningfully among categories, supporting skill-building requirements in writing and quantitative reasoning while resisting humanities, civilization, and natural science survey courses. The data also reveal demographic predictors of GE attitudes that have direct implications for advising, outreach, and curriculum communication strategies.

The contribution of this paper is primarily empirical. Most discussion of GE reform proceeds from faculty or administrator perspectives. This study puts student voice at the center of the analysis, quantifying attitudes across 13 GE categories using a survey instrument designed to capture both perceived worth and perceived effectiveness. The findings are actionable: some GE courses are already doing the legitimacy work that reformers hope for; others are not, and the data point toward where institutional energy is most needed.

BACKGROUND AND LITERATURE REVIEW

The Purpose and Structure of General Education

General education occupies a contested position in American higher education. The Association of American Colleges and Universities (AAC&U, 2011) articulates GE as designed to develop essential learning outcomes: intellectual and practical skills, personal and social responsibility, integrative and applied learning, and broad knowledge of human cultures and the natural world. These goals are institutionally defensible and nationally endorsed, yet their translation into required coursework creates tension with students' increasingly instrumental orientation toward college (Pascarella and Terenzini, 2005). The question of whether GE achieves its stated purposes is therefore both pedagogical and political.

Lattuca and Stark (2009) document that GE curricula vary widely in coherence and articulation across institutions. Programs that clearly communicate the rationale for each requirement tend to produce greater student engagement

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than those that present requirements as administrative constraints. Kuh (2008) identifies breadth requirements as potentially high-impact when they expose students to intellectual perspectives they would not otherwise encounter, but notes that the impact depends heavily on how the courses are taught and sequenced. The literature therefore suggests that student resistance to GE is sensitive to how the program is designed and communicated.

Student Perspectives on GE Requirements

Research on student attitudes toward GE consistently documents instrumental reasoning with students evaluating requirements in terms of their perceived usefulness to career and major goals (Light, 2001). Schneider (2015) finds that students and recent graduates are more supportive of GE than they anticipated before college, with majorities endorsing the value of writing, critical thinking, and quantitative skills. But the same data show weaker endorsement of requirements that are perceived as distant from professional application, a pattern this study examines in granular category-level detail.

Gender and academic standing are consistent demographic predictors of academic engagement. Research finds that female students generally report higher course satisfaction and deeper engagement with academic content than male students (Pascarella and Terenzini, 2005). Upper-division students who have completed more GE coursework often develop more nuanced evaluations of its value, though frustration with required courses may also increase as students move through a program. The role of political orientation in GE attitudes is understudied, despite the fact that GE programs frequently include content on diverse cultural perspectives, a topic with evident ideological salience in the current environment.

METHODOLOGY

Beginning in 2016, Brau, et al. (2016, 2017, 2019, 2020a,b,c, 2021a,b, 2022, 2024) have used similar survey and empirical methods to test various business education topics. The data come from a Qualtrics survey administered to undergraduate students enrolled in a principles of finance course at a large private university in the western United States during spring semester 2025. The survey instrument included sections on GE attitudes and course-level perceptions, demographic, and background characteristics. Institutional Review Board approval was obtained prior to data collection, and participation was voluntary.

Students who failed two embedded attention checks were removed, yielding a final analytical sample of 977 respondents. The GE-relevant survey sections covered: overall attitude statements about GE using 1-6 agreement scales; development perception items on a 1-5 scale; ratings of whether each of 13 GE categories is a worthwhile requirement and whether it fulfills its stated educational purpose, each on a 1-6 agreement scale; binary preferences for making each category optional versus required; and ratings of how well GE achieves six stated institutional goals. Descriptive statistics for the sample are presented in Table 1.

Demographic characteristics reflect the composition of the host institution's business program. The sample is 67.5 percent male and predominantly junior and senior in standing. OLS regressions with HC1 heteroskedasticity-robust standard errors are used to identify demographic predictors of GE attitudes. The full regression specification includes gender, academic standing, GPA, region of upbringing, religious background, volunteer service, political orientation, advanced coursework in high school, and transfer status.

Table 1: Sample Characteristics

Variable	N	Mean / %
Panel A: Demographics		
Male	977	67.5%
Freshman	977	15.7%
Sophomore	977	39.6%
Junior	977	20.0%
Senior	977	23.3%
Fifth Year or Beyond	977	1.2%

Panel B: Academic Background		
College GPA (0-4 scale)	958	3.72
Took AP or IB Classes in HS	977	80.0%
Transfer Student	977	20.3%
Panel C: Political Orientation		
Conservative	977	68.2%
Moderately Conservative	977	9.0%
Moderate	977	15.8%
Liberal or Very Liberal	977	6.1%

Note. N = 977. Academic standing percentages do not sum to 100% due to rounding. GPA based on self-reported 0-4 scale; n = 958 with valid responses.

FINDINGS

Students Hold Ambivalent but Internally Consistent GE Attitudes

The most striking pattern in Table 2 is the coexistence of mild support and clear resistance across GE attitude items. On a six-point scale (1 = strongly disagree, 6 = strongly agree), students report slight enjoyment of GE classes (mean = 3.71), acknowledge their importance for all students (mean = 3.89), and understand their objectives well (mean = 4.62). At the same time, they strongly agree that most GE classes should be optional (mean = 4.72) and moderately agree they represent a waste of time (mean = 4.23).

This apparent contradiction resolves when one recognizes that students can simultaneously believe in the abstract value of breadth education while resisting the imposition of specific required courses. The institutional recognition item (Q10_3, mean = 3.37 on a 1-5 scale) adds a cynical note: students moderately agree that GE courses are a mechanism for generating tuition revenue rather than purely educational. On the developmental side, GE is rated as providing modest value for personal life skills (mean = 3.06) and professional skills (mean = 3.02), while ratings for exploring majors and career paths fall slightly below neutral (mean = 2.98).

Table 2: Key GE Attitude Variables

Variable	N	Mean	SD
Panel A: GE Development Perceptions (1-5 scale)			
GE classes helped develop skills useful in my personal life (Q10_1)	975	3.06	1.10
GE classes helped me explore potential majors or career paths (Q10_2)	974	2.98	1.14
GE classes are a way for the university to make more money (Q10_3)	975	3.37	1.06
GE classes helped develop skills useful in my professional life (Q10_4)	975	3.02	1.07
Panel B: Overall Attitude Statements (1-6 scale)			
I enjoy taking GE classes (Q13)	975	3.71	1.08
GE material is boring (Q14)	975	3.50	0.98
GE classes should be optional (Q15)	975	4.72	1.05
GE classes are a waste of time (Q16)	975	4.23	1.13
GE classes are important for all students (Q17)	975	3.89	1.08
I have a clear understanding of GE objectives (Q11)	972	4.62	0.99

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Panel C: GE Goal Effectiveness (1-5 scale)			
Enhances critical thinking and analytical skills (Q12_1)	974	3.11	0.96
Promotes effective communication (Q12_2)	973	3.07	1.04
Establishes clear standards of intellectual integrity (Q12_3)	970	3.28	1.14
Develops cultural understanding (Q12_4)	973	3.19	1.07
Develops math and problem-solving ability (Q12_5)	973	3.32	1.01
Develops scientific reasoning (Q12_6)	973	3.22	1.05

Note. Panel A items use a 1 = Strongly Disagree to 5 = Strongly Agree scale. Panel B and Panel C use a 1 = Strongly Disagree to 6 = Strongly Agree scale. N = 977 except as noted for item-level nonresponse.

Skill-Building Courses Are Perceived as Most Worthwhile

Table 3 displays the mean perceived worth and perceived fulfillment of each GE category, sorted from most to least worthwhile. A clear pattern emerges: the four highest-rated categories on worth are Quantitative Reasoning (4.38), Advanced Written and Oral Communication (4.37), First-Year Writing (4.17), and Languages of Learning (4.15). All four reflect identifiable professional skills that students associate directly with career readiness. The finding that students rate quantitative and communication requirements as most worthwhile is consistent with the broader literature on student pragmatism in evaluating educational requirements.

The fulfillment column reveals an additional pattern. Advanced Written and Oral Communication (4.44) and Quantitative Reasoning (4.31) are not only rated most worthwhile but are also perceived as best-fulfilling their stated educational purposes. This alignment between perceived worth and perceived effectiveness suggests these courses have successfully communicated their value proposition to students. First-Year Writing (4.06 fulfillment) and Languages of Learning (4.03 fulfillment) show similar patterns, with fulfillment tracking closely with worth.

Table 3: Perceived Worth and Fulfillment of GE Categories (1-6 Scale, Sorted by Worth)

GE Category	Worth Mean	Worth SD	Fulfillment Mean	Fulfillment SD
Quantitative Reasoning	4.38	1.38	4.31	1.46
Adv. Written & Oral Comm.	4.37	1.26	4.44	1.27
First-Year Writing	4.17	1.46	4.06	1.48
Languages of Learning	4.15	1.43	4.03	1.55
American Heritage	4.08	1.50	3.64	1.72
Social Science	4.08	1.34	3.84	1.52
Global & Cultural Awareness	3.79	1.44	3.38	1.67
Letters	3.65	1.57	3.41	1.69
Biological Science	3.52	1.58	2.99	1.72
Civilization 2	3.48	1.61	3.06	1.73
Physical Science	3.46	1.57	2.96	1.68
Civilization 1	3.45	1.53	2.98	1.66
Arts	3.35	1.68	2.95	1.75

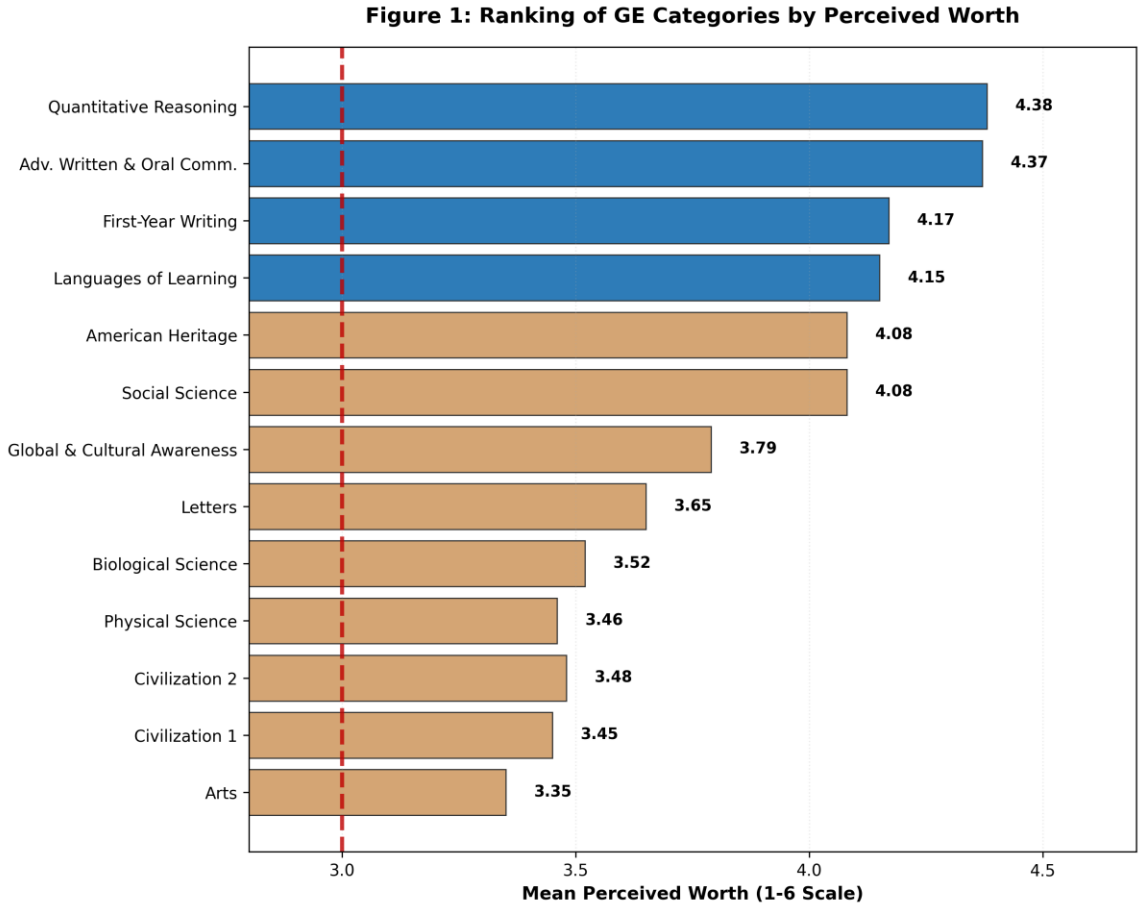
Note. Worth item: "[Category] is a worthwhile requirement for all undergraduate students." Fulfillment item: "[Category] classes at university fulfill their stated educational purpose." Both items use a 1 = Strongly Disagree to 6 = Strongly Agree scale. N ranges from 969 to 973 per category.

Humanities and Science Survey Courses Face a Legitimacy Problem
The bottom half of Table 3 reveals a persistent legitimacy deficit for humanities, fine arts, and natural science survey requirements. Arts (3.35 worth, 2.95 fulfillment), Civilization 1 (3.45 worth, 2.98 fulfillment), Physical Science (3.46 worth, 2.96 fulfillment), Civilization 2 (3.48 worth, 3.06 fulfillment), and Biological Science (3.52 worth, 2.99 fulfillment) all score below 3.60 on worth and below 3.10 on fulfillment.

Particularly striking is that every category rated below 4.00 in worth also shows a substantial gap between worth and fulfillment. Arts, for example, carries a 0.40-point gap (3.35 worth versus 2.95 fulfillment), and Biological Science shows a 0.53-point gap (3.52 versus 2.99). These gaps suggest that even the modest perceived value of these categories is not being delivered in practice. Students are not only skeptical of the rationale for these requirements; they also believe the actual courses are failing to meet even that skeptical standard. This double deficit, low perceived worth combined with low perceived effectiveness, is the signature of a GE area most in need of curricular attention.

Students Consistently Want Breadth Requirements Made Optional
Figure 1 and Table 4 present student preferences for making each GE category optional versus required, ranked from the highest proportion preferring optional status. The correlation between Table 3 and Table 4 is nearly perfect: the categories students rate as least worthwhile are those they most want to make optional. Civilization 2 leads with 82.2 percent preferring optional status, followed by Arts (77.2 percent), Letters (69.8 percent), Physical Science (63.3 percent), Civilization 1 (62.0 percent), and Biological Science (61.7 percent).

Figure 1: Ranking of GE Categories by Perceived Worth



The skill-building categories show the inverse pattern. First-Year Writing is the category students most want to keep required, with 78.1 percent endorsing required status, followed by Advanced Written and Oral Communication (73.2 percent) and Quantitative Reasoning (70.0 percent). Social Science (59.5 percent required) and American Heritage

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(52.5 percent required) occupy a middle ground where student opinion is closely divided. The overall picture is that students have coherent views about which requirements serve them and which do not, and their optional-versus-required preferences track precisely with their worthiness ratings.

Table 4: Student Preferences for Optional vs. Required Status by GE Category (Ranked by % Preferring Optional)

GE Category	N (Optional)	% Optional	N (Required)	% Required
Civilization 2	801	82.2%	174	17.8%
Arts	753	77.2%	222	22.8%
Letters	679	69.8%	294	30.2%
Physical Science	618	63.3%	358	36.7%
Civilization 1	605	62.0%	371	38.0%
Biological Science	602	61.7%	373	38.3%
Languages of Learning	522	53.6%	452	46.4%
Global & Cultural Awareness	519	53.2%	457	46.8%
American Heritage	463	47.5%	511	52.5%
Social Science	393	40.5%	578	59.5%
Quantitative Reasoning	292	30.0%	680	70.0%
Adv. Written & Oral Comm.	261	26.8%	714	73.2%
First-Year Writing	213	21.9%	760	78.1%

Note. Students were asked to indicate whether each GE category should be Optional or Required for all undergraduate students. Totals for each category: N ranges from 971 to 975.

Gender, GPA, and Political Orientation Are Significant Predictors

Table 5 presents OLS regression results for two dependent variables: GE enjoyment (Q13) and preference for making GE optional (Q15). Both models use identical independent variables: gender, academic standing, GPA, political orientation, AP or IB coursework in high school, and transfer status. The models are estimated with HC1 heteroskedasticity-robust standard errors.

Three variables are consistently significant across both models. Male students report lower GE enjoyment ($b = -0.223$, $p < 0.001$) and stronger preference for optional GE ($b = 0.285$, $p < 0.001$). GPA is strongly significant in both models: higher-GPA students enjoy GE more ($b = 0.076$, $p < 0.001$) and are less likely to prefer optional status ($b = -0.090$, $p < 0.001$). Political orientation, coded so that 1 = conservative and 4 = liberal or very liberal, is positively associated with GE enjoyment ($b = 0.110$, $p < 0.001$), meaning more liberal students enjoy GE classes more and are significantly less likely to prefer optional status ($b = -0.099$, $p < 0.05$). Upper-division standing (junior and senior) is marginally associated with lower GE enjoyment ($b = -0.198$, $p < 0.10$), consistent with the pattern of accumulating frustration with required coursework as students advance. It should be noted that these models explain approximately 3.6 percent of the variance in GE enjoyment and 3.7 percent of the variance in optional preference ($R^2 = .036$ and .037, respectively). While this is a modest proportion, it is consistent with research on academic attitudes and indicates that the demographic variables in our model capture only a portion of the factors influencing student GE attitudes.

Table 5: OLS Regression Predicting GE Enjoyment and GE Optional Preference

Variable	Coef.	SE	Coef.	SE
Dependent Variable	**GE Enjoyment (Q13)**		**GE Optional (Q15)**	
Intercept	3.974***	0.238	4.961***	0.250
Male (=1)	-0.223***	0.079	0.285***	0.079
Sophomore (vs. Freshman)	-0.066	0.103	-0.018	0.097
Junior/Senior (vs. Freshman)	-0.198*	0.107	0.065	0.100
College GPA	0.076***	0.013	-0.090***	0.015
Political Orientation (1=Cons.)	0.110***	0.037	-0.099**	0.040
Took AP/IB in HS (=1)	-0.091	0.098	-0.023	0.090
Transfer Student (=1)	0.010	0.100	-0.069	0.093
Controls	Y		Y	
R-squared	0.036		0.037	
N	954		954	

Note. HC1 heteroskedasticity-robust standard errors. Political orientation coded 1 = Conservative to 4 = Liberal or Very Liberal. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. N = 954 for both models due to listwise deletion on GPA and other items.

ADMINISTRATIVE AND TEACHING IMPLICATIONS

The modest explanatory power of our demographic models, explaining less than 4 percent of variance in GE attitudes, suggests that individual student factors (academic goals, learning styles, prior coursework quality) and institutional factors (course design, instructor quality, coherent GE communication) likely explain the majority of variation in how students evaluate general education. Our contribution is therefore to document the demographic patterns that do emerge, while acknowledging that much variation in student attitudes remains unexamined. Based on these associations, the findings suggest several implications for GE program administrators and faculty. First, skill-building courses do not need an advocacy campaign. Students already perceive writing, quantitative reasoning, and oral communication requirements as worthwhile, and they believe these courses deliver on their stated purposes. Administrative energy spent defending these requirements is not as poignant as the humanities, for example. The data suggest students have already accepted their legitimacy. The more productive investment is ensuring these high-value categories have sufficient sections, thoughtful sequencing, and strong instruction, since they are the courses students are most willing to engage. These demographic associations represent observable patterns in student attitudes but do not explain the causal mechanisms underlying these patterns. Other unmeasured factors, including peer influences, prior educational experiences, teaching quality, and individual student career goals, likely contribute significantly to variation in GE attitudes.

Second, humanities and natural science survey courses face a genuine legitimacy crisis that course design and communication must address. A course with 82 percent of students preferring optional status and a below-midpoint fulfillment score is most likely failing to communicate its value. Faculty teaching these courses should explicitly connect content to professional applications, critical thinking outcomes, and the stated institutional goals that motivate the requirement. Administrators redesigning GE should consider piloting thematic versions of these courses that integrate content around career-relevant problems, a model with some evidence support in the broader GE literature.

Third, the gender gap in GE attitudes is large and significant. Male students report lower enjoyment and stronger preferences for optional status, controlling for GPA and other factors. Advising programs and GE orientation initiatives could specifically address how GE requirements connect to professional identity and career preparation, framing that research suggests is more motivating for male undergraduates. The GPA relationship, indicating that higher-performing students are more supportive of GE, also suggests that targeted outreach to academically struggling students about the value of breadth education could improve both engagement and retention.

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CONCLUSION

The evidence from this survey is consistent and informative. Undergraduate business students are not uniformly hostile to general education, but they are highly selective in their support. They endorse requirements that develop skills they connect to professional and personal life, and they resist requirements that feel distant from those outcomes. The data provide a clear ranking of GE categories by student-perceived worth and a mapping of where students want reform.

Program administrators should resist the temptation to defend GE as an all-or-nothing proposition. The data suggest a more nuanced strategy which is to double down on the high-legitimacy skill-building courses while fundamentally rethinking how low-legitimacy breadth courses communicate their value. The male-student gap and the GPA relationship also point toward specific populations that GE advisors should prioritize. Listening to what students think about required courses, and taking that evidence seriously in curriculum design, is itself a form of educational responsiveness that GE programs should model.

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Data Analytics in the Accounting Profession:

How is data analytics transforming the accounting profession, and how should the accounting curriculum evolve to prepare students for these changes?

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ABSTRACT

Rapid advancements in data analytics are transforming the accounting profession by reshaping traditional practices and expanding accountants' roles far beyond routine tasks. This paper examines how data analytics is influencing the accounting role and explores how accounting curricula should evolve to prepare students for these changes. Using a qualitative research design with document analysis, the paper reviews scholarly literature, industry reports, and educational research to identify opportunities, challenges, and skill requirements associated with the adoption of analytics. The findings show three major themes: the technological impact of analytics on accounting tasks, the balance of benefits and risks it introduces, and a gap between professional skill demands and current accounting education. The results suggest that while data analytics helps with decision-making, transparency, and strategic value, accounting programs often fail to meet industry needs by providing hands-on analytics training. This paper concludes that accounting education must place more emphasis on data analytics, ethical reasoning, and skill development to ensure graduates remain competitive in a data-driven profession.

Keywords: Data analytics, accounting profession, accounting education, curriculum, auditing

INTRODUCTION

As industries become more data-driven, rapid advances in technology have reshaped nearly every professional field, particularly accounting. Organizations now have the ability to collect and store large amounts of financial and non-financial data, which creates both challenges and opportunities for accountants. In this evolving environment, data analytics is increasingly seen as a powerful tool that enables firms to move beyond traditional bookkeeping and compliance towards more predictive insights, faster decision-making, and strategic advisory roles. As a result, the profession is undergoing a significant transformation, requiring accountants to expand their skill sets and fully embrace technology-driven practices to remain relevant in the industry.

While data analytics creates advantages, it also changes the traditional role of accountants. Tasks that have traditionally shaped the accounting profession, such as manual bookkeeping and routine auditing, are becoming more automated. This shift to a more modern accounting raises concerns about the long-term relevance of accountants who rely only on traditional skills. At the same time, firms face challenges in integrating data analytics effectively, including issues of data quality, system compatibility, and workforce readiness. Without a clear understanding of how analytics is transforming accounting work and which skills are required to adapt, both professionals and organizations risk falling behind in a technology-driven industry. To examine these issues, this paper uses a qualitative approach based on document analysis, drawing on scholarly literature, industry reports, and educational research to identify the opportunities, challenges, and skills associated with data analytics adoption in accounting.

Purpose

The purpose of this paper is to understand how data analytics is changing accounting and to identify the skills accounting students must develop to remain relevant in a technology-driven industry. More specifically, this research looks at how data analytics is reshaping auditing, one of the areas of accounting most affected by these emerging technologies and considers both the opportunities and challenges that come with this shift. In addition, this paper emphasizes the role of the accounting curriculum in preparing future accountants to meet these changing expectations. By analyzing both the benefits of adopting data analytics and the skill sets required for professionals, the paper aims to provide valuable insights for accounting professionals, educators, and students preparing to enter the accounting field.

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Research Question

This paper is guided by the research question: How is data analytics transforming the accounting profession, and how should the accounting curriculum evolve to prepare students for these changes? To address this, the paper explores this through three related areas. First, it will examine how data analytics is transforming areas of accounting, specifically auditing. Research shows that analytics can improve audit quality and fraud detection (Earley, 2015). Second, the paper will explore the opportunities and challenges the transformations create for the profession. While data analytics promotes efficiency, accuracy, and real-time decision making, it also introduces new risks, such as privacy concerns, ethical issues, and barriers to adoption (Schweitzer, 2024). Finally, the paper will examine which skills are essential for accounting students and professionals, and how accounting programs can incorporate them. Recent research highlights the importance of developing new technical competencies in data analytics, visualization, and predictive analysis (Zin et al., 2022). By addressing the research question, the paper aims to show how technological change is reshaping accounting and how education programs can help future accountants stay prepared and competitive.

Significance

This paper is significant because it deepens understanding of how accounting and technology are coming together, providing professionals, educators, and students with practical insights. As employers are starting to expect graduates to hold analytical and digital skills (King, 2022), the findings will help educators better align their curricula with the demands of the professions. For professionals, the paper highlights both the opportunities and risks of adopting technologies such as artificial intelligence, big data analytics, and blockchain. Here, big data analytics refers specifically to the analysis of datasets that are too large or too complex for traditional processing methods. This distinguishes it from data analytics more broadly, which can be applied to datasets of any size. Research emphasizes that while these tools can improve efficiency, transparency, and fraud detection, they also introduce ethical challenges and barriers that must be carefully managed (Schweitzer, 2024). This paper also highlights the importance of skill development for future accountants. By gathering insights from both education and practice, this paper provides an overview of how data analytics is reshaping accounting and what curriculum and training strategies are necessary for accountants to remain valuable in a technology-driven industry.

LITERATURE REVIEW

Several recent studies offer a closer look at how accounting programs are attempting this integration, and it shows mixed results. In a survey of 15 different accounting department chairs, Falgout et al. (2024) found that most programs have chosen a hybrid model, which combines a specific analytics course with data analytics content integrated into existing accounting courses, and that almost all respondents reported having integrated data analytics somewhere in the curriculum. However, integrating data analytics into more courses does not necessarily mean students are learning it in greater depth. In a survey of 238 accounting educators, SeTin et al. (2024) found a gap between the need for data analytics instruction and the extent to which it is incorporated into accounting coursework. They suggested that one of the primary reasons for this gap is that many faculty members have not received enough training in data analytics themselves.

Case evidence supports this finding. Sarkar et al. (2021) examined how two universities implemented AACSB Standard 5 by expanding data analytics within their accounting curricula. Although the institutions used different approaches, both encountered similar challenges, particularly limited faculty experience with the technologies they were expected to teach. Together, these studies suggest that the pace of curriculum change may depend on how prepared faculty are to teach these skills.

Overall, this evidence suggests that data analytics is no longer just an optional tool, but it's transforming the accounting profession. As accountants move away from routine, hands-on tasks and take more strategic and analytical responsibilities, their role continues to evolve. At the same time, the risks highlighted in the literature make it clear that technological advancement does not lessen then importance of ethical reasoning and professional judgment. Another key finding is that the skills gap is not just a matter of accounting programs lacking awareness or willingness. Many programs have already begun integrating data analytics into their curricula through hybrid approaches. However, expanding data analytics across more courses does not necessarily mean students are gaining a deeper understanding of these skills. Instead, the gap appears to come from a practical challenge: many faculty members have not received sufficient training in the tools and techniques they are expected to teach. Finding the right balance between technology and strong values will be key to maintaining both trust and effectiveness in a changing field.

Importance of Data Analytics

Data analytics has become one of the most influential developments in the accounting profession, changing how financial information is processed, analyzed, and used. Unlike traditional accounting methods, which focus on recording and summarizing transactions, data analytics allows accountants to work with much larger datasets, identify patterns, and obtain predictive insights that help guide better decisions. Researchers have described analytics as a "game changer" in areas such as auditing and risk assessment because it now has the ability to improve accuracy and efficiency (Earley, 2015). The availability of big data has also enabled accountants to move beyond basic technical knowledge and toward more advanced skills (Zin et al., 2022). At the same time, educators and industry leaders recognize that while analytics brings great opportunities, it also comes with challenges that require a balance between technological skills and professional judgement. Together, these changes not only highlight the growing importance of data analytics in accounting but also the need to prepare both current and future accountants with the skills required to succeed in an increasingly data-driven profession.

Data Analytics Related to Auditing and Accounting

Auditing is one area of accounting most significantly affected by data analytics. Traditionally, auditors relied on sampling an number of transactions to financial statements, but with analytics, they can now review everything, resulting in greater accuracy. Research shows that this shift enhances fraud detection and improves audit quality by identifying unusual patterns and risks more effectively (Earley, 2015). Case studies in the banking sector demonstrate that advanced analytics tools can uncover irregularities and enhance oversight in high-risk environments, providing auditors with an advantage in fraud detection and risk assessment (Kamdjoung et al., 2024). The concept of "Audit 4.0" shows this transformation, as auditing evolves from traditional manual processes to more data-driven approaches (Celestin & Vanitha, 2019). It is found that this change in the accountants' role has resulted in pronounced demand for accounting graduates who possess data analysis skills (King, 2022). However, adoption has been uneven across the professions. While some firms are embracing analytics to gain deeper insights, others are hesitant due to costs, retraining requirements, or uncertainty (Tang et al., 2017). Overall, data analytics is changing how auditing is performed and what is now expected from accountants.

Benefits

The integration of data analytics into accounting provides numerous benefits for both organizational performance and the profession. One of the greatest advantages is efficiency, as analytics tools allow accountants to process large volumes of data quickly and with fewer errors. In auditing, this allows for higher quality reviews and more reliable fraud detection, reducing errors associated with traditional sampling methods (Earley, 2015). Analytics also creates new strategic opportunities by providing predictive insights and real-time monitoring, which allows firms to identify risks and make better decisions (Celestin & Vanitha, 2019). Emerging technologies are also expanding what data analytics can do. For example, Blockchain creates a permanent record of transactions, which gives analytic tools a more reliable dataset to work from and improves trust in financial reporting (Jiang, 2024). Artificial intelligence plays a similar role, automating the pattern recognition and predictive tasks that make analytics faster. Digital innovation also enhances accountability and compliance, as automation and analytics systems facilitate the more effective organization of regulatory requirements (Jayashree & Jayakani, 2024).

In addition to improving organizational performance, these benefits highlight the importance of preparing accounting students with skills in data analytics, blockchain, and data-driven decision-making. As technology continues to reshape the profession, accountants are taking on more strategic and advisory roles rather than focusing on routine tasks. This shift allows them to provide deeper insights and create long-term value for their organizations (Lala et al., 2021).

Risks

While data analytics creates many opportunities, it also introduces challenges and risks that must be carefully managed. One of the biggest concerns is data quality and reliability, as inaccurate or incomplete datasets can lead to misleading analytical results (Nateghi & Aven, 2021). Ethical issues are another challenge faced. Many scholars have warned that artificial intelligence and analytics may introduce bias, compromise privacy, and reduce transparency if not managed carefully (Schweitzer, 2024). In auditing, these concerns are even more critical because auditors work with sensitive client information, making data breaches or misuse serious.

In addition to ethical concerns, organizations often face barriers when adopting data analytics. Many firms are hesitant to invest in new technologies due to high costs, the need to retrain employees, and uncertainty about how analytics tools will fit within existing workflows (Lala et al., 2021). Additionally, refusal to change among professionals can

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also slow adoption, as some professionals remain more comfortable with traditional accounting practices. These challenges suggest that while data analytics has the potential to transform accounting, its long-term success depends on more than technical expertise. Accounting programs must prepare students not only with technical skills but also with the professional judgment and ethical decision making needed to apply those skills responsibly.

Needed Skills

As data analytics continues to reshape the accounting profession, accountants must develop a new combination of technical and non-technical skills to remain competitive in a technology-driven industry. Regarding technical skills, studies have emphasized the importance of competencies in data visualization, statistical analysis, and predictive modeling, which allow accountants to interpret and communicate insights (Zin et al., 2022). Implementing emerging technologies, such as blockchain and artificial intelligence, has become increasingly valuable, as these tools are reshaping auditing (Jiang, 2024).

While the literature identifies data visualization, statistical analysis, and predictive modeling as essential skills, each plays a specific role within the accounting practice. Data visualization goes beyond just static reporting. Instead, accountants use tools such as Tableau and Power BI to create and build interactive applications. For example, these tools can be used to visualize trends in financial statement audits or flag unusual transaction patterns during fraud examinations. Employers increasingly expect graduates to be proficient with these tools, as well as programs like Excel and SQL, so they can analyze large datasets and communicate their findings clearly (Askary & Askarany, 2024). Statistical analysis is equally important, supporting tasks such as audit sampling and ratio analysis allowing accountants to evaluate the reliability of financial data using analytical techniques rather than relying solely on manual sampling. Predictive modeling goes further, using regression analysis and machine learning to forecast revenue, assess going-concern risk, and estimate the likelihood of material misstatements. This shifts the accountant's role from historical reporting towards a more forward-looking role in risk assessment and decision-making.

Researchers have also studied the best ways to incorporate these skills into accounting education. Three approaches have been proposed: a focused approach (a standalone analytics course), an integrated approach (analytics with existing accounting courses), and a hybrid approach combining both. A survey from accounting faculty found the strongest support for the hybrid model because it allows students to take a dedicated analytics course while still reinforcing those skills throughout the accounting curriculum (Dzuranin et al., 2018). However, just having technical abilities aren't enough. Research has highlighted that accountants must also develop adaptability, problem-solving abilities, and ethical judgment to ensure accountants can respond to change while still maintaining professional standards (Manira & Effendy, 2024).

Educators play a crucial role in preparing future accountants to meet these changing demands. Recent studies highlight the growing importance of integrating data analytics, digital literacy, and strategic thinking into current accounting curricula (King, 2022). Many scholars argue that accounting programs can better prepare students by embedding practical data analytics applications into coursework and providing hands-on experience with real datasets (Moore & Felo, 2022). By combining technical skills with analytical thinking and ethical awareness, accounting programs can help graduates take on a bigger role within organizations.

Although research on data analytics in accounting has grown quickly, there are still several unresolved issues. Much of the existing literature highlights the benefits of analytics in auditing, but fewer studies provide empirical evidence on how these tools are being applied across diverse industries (Earley, 2015). While many scholars are explaining the technical skills accountants need, there is a lack of focus on how educational programs and professional development can effectively combine academic preparation with industry expectations (King, 2022). Addressing these gaps will be important as accounting education continues to evolve to meet the demands of an increasingly data-driven profession.

Implementation by Course Level

While identifying which skills matter and what model a program should follow, faculty still face a more important question: what does this look like in a specific course? The following examples show how the skills and resources discussed above can be incorporated into specific course types, drawing on both the resources identified earlier and experience of institutions that have already attempted this integration.

In introductory accounting courses, the goal should be to expose students to data analytics rather than expect them to master it. Rather than adding a separate analytics course, instructors can implement short, auto graded assignments and exercises directly into existing coursework using tools such as McGraw Hill's Connect platform. These resources allow students to build basic dashboards or interpret visualizations in Tableau or Power BI without requiring prior experience. This reflects the integrated model by introducing students to analytic tools early without disrupting the

course's core accounting content.

The Accounting Information Systems (AIS) course provides an ideal setting for more advanced technical instruction. Sarkar, et al. (2021) described how two institutions redesigned their AIS coursework to meet AACSB Standard 5 by integrating data analytics into the curriculum. Their experiences suggest that AIS is a natural place for students to build more advanced skills, particularly in data visualization and analytics, because the course already gives the foundation students need to understand how data is structured before they begin analyzing it.
In auditing courses, the connection between classroom instruction and professional skill development is especially clear. Audit sampling and fraud detection rely heavily on statistical analysis and predictive modeling, making these courses ideal for students to apply these skills. Faculty can use resources such as the EY Helix General Ledger Analyzer for hands-on audit analytics practice with realistic datasets or assign published cases to give students a real-world scenario for applying these skills.

Finally, for programs with the resources to offer a dedicated analytics course, the focused model can be useful. However, Falgout, et al. (2024) found that most programs like a hybrid approach because a standalone course can isolate these skills rather than reinforce them across a student's broader coursework. For programs that choose the focused model, resources such as PwC's INQuires grant program to help support the development of a dedicated analytics course.

Table 1: Course Integration Guide

Course Type	Primary Skill Focus	Integration Model	Suggested Resource
Introductory Accounting	Basic visualization	Integrated	McGraw Hill Connect (Tableau/Power BI)
Accounting Information Systems	Data structures, visualization, systems analytics	Integrated/Hybrid	Tableau
Auditing	Statistical analysis, fraud detection	Hybrid	EY Helix
Analytics Elective	Predictive modeling, applied projects	Focused	PwC INQuires-funded coursework

Available Resources for Curriculum Integration
While the challenges of integrating data analytics into accounting curricula are well documented, less attention has been given to the resources available to help faculty overcome those challenges. In response, several organizations have developed free or low-cost instructional materials that make it easier for instructors to incorporate data analytics into existing accounting courses.

The major public accounting firms have also played an active role in supporting data analytics education. For example, The EY Academic Resource Center (EYARC) offers faculty at nonprofit colleges and universities with free access to studies, datasets, analytic workbooks, and instructional videos covering topics ranging from audit analytics to blockchain. The platform is already used by more than 5,700 faculty members at over 1,300 institutions worldwide. One of its most popular resources, the EY Helix General Ledger Analyzer, gives students to opportunity to practice audit analytics using realistic datasets (Ernst & Young, 2024). Similarly, PwC offers data analytics case studies and supports faculty through its INQuires grant program, helping instructors integrate data analytics and technology into their courses (PricewaterhouseCoopers, 2024).

Textbook publishers have also made data analytics instruction more accessible by incorporating these tools directly into their learning platforms. For example, McGraw Hill's Connect platform includes auto-graded assignments that use Tableau and Power BI, allowing students to create interactive dashboards and analyze real- world datasets without taking a separate analytics course (McGraw Hill, 2024). Because these activities can be incorporated into courses ranging from introductory accounting to auditing classes, they provide opportunities for students to build and reinforce analytics skills throughout the curriculum.

Faculty also have access to a growing collection of published, classroom-tested case studies that can be incorporated into accounting courses. For example, the Huskie Motor Corporation case developed by Dzuranin, Perols, and Hart (2018) gives students the opportunity to visualize data and predict manufacturing outcomes, while the *Mystery, Inc*.

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case by Enget, Saucedo, and Wright (2017) introduces students to working with large, unstructured datasets. Because these peer-reviewed cases have been tested in the classroom, instructors can adapt them to fit their existing courses. Table 2 below summarizes these categories and the course levels they are best suited for.

Table 2: Selected Data Analytics Resources for Accounting Curricula

Resource	Provider	Format	Best Suited For
EYARC case library	EY Foundation	Case studies, datasets, analytics workbooks, videos	Audit, AIS, tax, introductory accounting
Data-and analytics case studies/INQuires grants	PwC	Case studies, faculty funding	Any course; grant-funded custom development
Connect Data Analytics (Tableau/Power BI modules)	McGraw Hill	Auto-graded LMS exercises	Introductory through capstone courses
Published case studies	Peer-reviewed journals	Standalone teaching cases	AIS, audit, data analytics electives

DISCUSSION

After reviewing the literature connected to the proposed research question, three major themes emerged. During the analysis, each article was read closely for ideas related to how data analytics is influencing the accounting field. Common topics included technological impact, professional challenges, benefits, risks, skills gaps, and limitations in current accounting curricula. Together, these patterns shaped the three key themes discussed below.

As found in the researched texts, one theme appeared consistently: data analytics is changing how auditing is performed. Every study that mentioned auditing highlighted ways analytics has expanded what accountants can test, detect, or monitor. For example, several studies emphasized full-population testing, automated fraud detection, and continuous monitoring that were traditionally impossible under sampling-based auditing (Earley, 2015). When compared with other literature, these findings show that analytics does more than improve existing audit procedures; it changes how they are carried out. The consistent pattern across the literature led to the first major theme: technology is taking over many routine tasks, allowing accountants to focus on more analytics and strategic responsibilities.

A second major theme focused on how the accounting profession is adapting to these new technologies. Researchers consistently discussed both the benefits and the challenges associated with data analytics. Many studies highlighted improvements in efficiency, prediction capabilities, and decision-making, while others emphasized concerns such as data privacy, algorithmic bias, and resistance to change within organizations. Together, these findings suggest that the transition to data-driven accounting is more complex than simply adopting new technology. For example, while analytics offers powerful tools that can streamline processes (Celestin & Vanitha, 2019), it also raises questions about fairness, oversight, and accountability if algorithms are poorly designed or used without human judgment (Schweitzer, 2024). The balance between opportunity and responsibility showed a second major theme: while data analytics offers significant advantages for the accounting profession, it also introduces ethical and organization challenges that must be carefully managed.

The third major theme focused on the growing gap between the skills employers expect and the preparation students receive in many accounting programs. Many studies emphasized that future accountants need more than a strong foundation in traditional accounting principles. They must also develop skills in data analytics, data visualization, and artificial intelligence to meet the changing demands of the profession (Zin et al., 2022). However, the research also showed that many accounting programs are struggling to keep up. Although schools have begun incorporating analytics into their curricula, these efforts are limited and do not provide students with enough hands-on experience to build confidence using these tools (King, 2022; Moore & Felo, 2022). Additional studies also identified inconsistencies in how programs approach technical training, creating uneven student preparation (Sufian et al., 2023). Together, these findings lead to a clear conclusion: the accounting profession is evolving more quickly than accounting education, leaving many graduates underprepared for today's data-driven workplace.

CONCLUSION

In conclusion, data analytics is reshaping the accounting profession by making accounting work more efficient, accurate, and transparent. At the same time, it brings new challenges that educators, practitioners, and policymakers must address. The literature reviewed in this paper makes it clear that technical expertise alone will not be enough to remain relevant in the industry. Accountants must combine analytical skills with adaptability, ethical reasoning, and strategic thinking to remain relevant and effective. To help address these needs, three recommendations are proposed. First, accounting educators should continue to integrate analytics throughout the curriculum to ensure students gain hands-on experience with real-world analytical tools (King, 2022). Second, accounting firms should invest in continuous professional development that encourages both technical training and ethical awareness, giving current professionals the ability to adapt to evolving technologies (Lala et al., 2021). Finally, policymakers and professional bodies should establish clear guidelines for the responsible use of analytics and artificial intelligence, balancing innovation and accountability (Schweitzer, 2024). By taking these steps, the accounting profession can do more than simply adapt to a technology-driven future. It can use data analytics to strengthen decision-making, improve audit quality, and enhance the value that accountants bring to organizations.

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Embedding Micro-Internship in a Marketing Career Development Course

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ABSTRACT

This study explores the integration of micro-internships (MI) into an undergraduate career development course at California State Polytechnic University, Pomona. By embedding micro-internships, the course aims to enhance career readiness among marketing students. The manuscript highlights the benefits, challenges, and implementation strategies of this pedagogical experiment, emphasizing the alignment with NACE core competencies. Initial findings suggest that micro-internships offer flexible, practical experiences that bridge academic learning and real-world application, ultimately contributing to students' professional development and employability.

Keywords: micro-internships, career readiness, first-generation students

INTRODUCTION

While internships are widely recognized as beneficial for college students, many are unable to secure such opportunities due to various constraints (Stowe, 2025). This study contributes to business education innovation by applying a course-embedded micro-internship model that expands access to experiential learning opportunities. The integration of micro-internships into academic curricula has gained traction as an innovative approach to enhance career readiness among undergraduate students. At California State Polytechnic University, Pomona, the International Business and Marketing Department has adopted this model to bridge the gap between academic learning and practical experience. This manuscript explores the implementation of micro-internships in the IBM 2000 Special Topics Lower Division course, highlighting the benefits and challenges of this pedagogical experiment.

Background

California State Polytechnic University at Pomona has a history of being recognized for the success it has experienced by preparing undergraduate students for a career. The *Wall Street Journal* ranked the school number 10 on its "2025 WSJ/College Pulse Social Mobility" ranking (CPP News, 2025), which measures how much a university adds to its students' ability to climb the economic ladder of success following graduation. Previously, the university achieved the number 3 ranking of being, "the nation's highest-ranking polytechnic university for helping low-income students achieve their dreams of success and upward economic opportunity by graduating them into well-paying careers," as it pertains to social mobility (CollegeNet Buzz, 2024). The university has been able to achieve these accomplishments by adopting the core competencies identified in the National Association of Colleges and Employers (NACE) model. These competencies are even posted on the university career center home page (2025). These forms of acknowledgment are very noteworthy since the university is a Hispanic serving institution, an institution that serves a large population of first-generation students who have unique challenges when pursuing an undergraduate degree. For these students, access to professional undertakings such as internships, networking events and support can differ widely when compared to continuing generation students (Stowe, 2025).

Career Readiness

The concept of career readiness derived from attempts by employers to establish a standard that would help identify qualified candidates for employment across the United States. The original focus was on students gaining skills tied to critical thinking, problem-solving, and collaborative skills across a range of academic subjects (Mishkind, 2014). If a set of criteria was formalized to address the expectations of potential employers from one state to the next, it would create a wider pool of qualified candidates for potential employers nationwide.

Awarding badges is another means in which a group of expectations fulfilled by students would lead to common acknowledgment and acceptance as it pertains to the qualifications of a candidate. Cowley, Humphrey Jr., and Munoz (2021) suggested that certifications are credentials that contribute to job and career readiness. Google, Hootsuite,

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HubSpot, and LinkedIn offer certifications for interested individuals. When badges are earned, they can be a characteristic that helps to distinguish one potential candidate from another.

Also in 2021, a study looked at how the Federal-Work Study program impacted undergraduates with regards to career readiness (Akos, Leonard, & Bugno, 2021). Over seventy-five percent of the student participants felt that working in the work study program had a positive effect on their career readiness in most of the categories associated with NACE core competencies. It must be mentioned that those students who are eligible for Federal-Work Study are economically disadvantaged. Also, without the Federal-Work Study program, these same students may have had to take out loans to enroll in classes. This can have negative financial effects on graduates, especially for those who are unable to secure employment after graduation.

NACE Core Competencies

The National Association of Colleges and Employers is an organization that is an advocate for career readiness. The organization describes career readiness as, "...a foundation from which to demonstrate requisite core competencies that broadly prepare the college educated for success in the workplace and lifelong career management" (NACE 2025). As it pertains to new college graduates, "…career readiness is key to ensuring successful entrance into the workforce. Career readiness is the foundation upon which a successful career is launched. Career readiness is, quite simply, the new career currency."

There are eight core competencies that form the foundation for career readiness: Career & Self-Development, Communication, Critical Thinking, Equity & Inclusion, Leadership, Professionalism, Teamwork, and Technology. California State Polytechnic University, Pomona is committed to utilizing the NACE core competencies as a model framework. In the International Business and Marketing Department, one course, IBM 2000 Special Topics Lower Division, has been selected to adopt these core competencies (Myers, Ghosn, Ozkaya, Di Franco and Bryant, 2024). This allows underclassmen in the department to be introduced to these principles. IBM 2000 is an international business/marketing (IBM) class structured to empower students to effectively seek employment as an undergraduate both before and after graduation. The course largely relies on guest speakers and written assignments to help fulfill this goal. In their presentations throughout the first eight weeks of the fifteen-week semester, guest speakers offer their expertise on the following topics – Career Center Resources, Career Track Options, Students Club Involvement, LinkedIn and Personal Branding, Mentoring for Career Success, and a Career Success Workshop. The assignments that are given in the class cover the following areas – Matching Skills with Career Choice, Targeting Employers, Resume and Cover Letter, Career Track Form, and Interview and Analysis Project.

Prior to graduation, undergraduates often face challenges in becoming employed. The likelihood of finding employment can be influenced by factors such as the career readiness of the student or the state of economy. IBM 2000 seeks to provide undergraduate students a source of knowledge and practice for those who desire to be hired as they complete their studies at the university.

According to NACE, "For employers, career readiness plays an important role in sourcing talent, providing a means of identifying key skills and abilities across all job functions; similarly, career readiness offers employers a framework for developing talent through internship and other experiential education programs" (NACE 2025). Internships provide an opportunity for students to get actual experience from a potential employer. In fact, there are instances where the internship may turn into full-time employment for the student. This article is about introducing micro-internships to interested and available students in IBM 2000 with the hope that these micro-internships will give these students the experience of working on a task for a business professional.

What is Micro-Internship?

Micro-Internships are defined as "short term, paid, professional assignments that range from 5 to 40 hours of work in total, can occur anytime of the year, and are highly specific, project-based positions" ("Micro Internships," 2025). They can be due within a few days to a few weeks. They can be either on-site or virtual, depending on the employer's project requirements. They can complement traditional internship programs that are concurrently offered throughout campus programs. Micro-Internship programs are managed by the team under the University Office of Academic Innovation ("Micro Internships," 2025).

What are the Benefits of Micro-Internship?

According to University Associate Vice President Dr. Olukemi Sawyer, students who have at least one internship experience are more successful academically, and 77 percent of internship hosts hire their interns for permanent jobs

(Johnson, 2025).

In addition to all the benefits offered with traditional internships, micro-internships appeal most to students, employers, and faculty with its flexibility and inclusivity. It offers many benefits that traditional internships may not be able to ("Micro Internships," 2025).

For students, micro-internships are typically paid projects with a much shorter time commitment, which makes it possible to fit into students' schedules throughout their degree programs. These micro-internship projects can involve different on-campus and off-campus partners, which offer students the unique opportunity to explore diverse career paths while they pursue their major degree programs. They are essentially experiential learning opportunities where students can apply their classroom knowledge to solve real employers' business problems. Micro-internship projects showcase students' professional skills and can be easily included in students' professional portfolios and have the student stand out in the job market. It also offers students the opportunity to build and expand their professional network while working on employer's projects. All students including international students and undocumented students are eligible to apply for micro-internships, and all students can have multiple micro-internships while they are pursuing their major degree program micro-internships directly contribute to students' "career readiness" before they graduate from the university to embark on their future careers ("Micro Internships," 2025).

For faculty facilitating experiential learning projects in their classes, or co-curricular and extra-curricular programs, micro-internships can fit in a wide variety of program modes. Due to its short duration, the projects can be easily embedded in a standard course as a class project, replacing typical projects with mock data and scenarios. Micro-internships can be also tied to campus research centers and service programs, as well as industry connection activities offered through student clubs. Through micro-internship projects, faculty can collaborate with a wide range of employers, both non-profits and for-profits, bringing the knowledge and skills students learned from the classrooms directly to local community partners and businesses, to create a positive impact. Faculty can utilize the micro-internship infrastructure to receive assistance in managing all administrative paperwork ("Micro Internships," 2025).

For employers or community partners, micro-internships free them from the administrative processes such as recruiting, training, and day-to-day supervising, and the costs associated with these that typically are required for traditional internship programs. With an established process of the University micro-internship administration team, students are required to commit to strict NDAs, employers retain ownership of all work deliverables at the end of the projects. Employers can freely hire students working on the projects as interns, contractors, or full-time employees as the need arises without additional cost. Table 1 summarizes the main benefits for students, faculty, and employers based on information from Office of Academic Innovation, Cal Poly Pomona ("Micro Internships," 2025).

Table 1. Benefits of Micro-Internships, a summary of information from Office of Academic Innovation, Cal Poly Pomona (Micro Internships, 2025)

For Students	For Faculty	For Employers
paid projects with short time commitment explore diverse career path application of classroom knowledge in solving real business problems develop a professional portfolio, show case professional skills expand professional network all students can apply	easy to embed micro-internship projects in course in major curriculum collaborate with a wider range of employers, both non-profit and for-profit leverage existing collaborations with campus partner employer and identify new ones receiving assistance on all internship administrative duties	no administrative paperwork required low cost to establish internship pipeline and collaboration with local universities commitment to strict NDAs, and the employer retains ownership of all work products employers can freely hire students as interns, contractors, or full-time employees without incurring any fees

Limitations of micro-internship

Despite the benefits of micro-internships summarized in Table 1, their short-term nature also presents several limitations. First, micro-internships are generally less immersive than traditional internships, giving students fewer

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opportunities to interact with coworkers and become integrated into the organizational environment. As a result, opportunities for professional networking, mentorship, and workplace socialization may be more limited. Second, because micro-internships are typically project-based and relatively short in duration, they may not expose students to the full range of responsibilities, challenges, and organizational dynamics encountered in longer-term internships. Therefore, while micro-internships offer valuable experiential learning opportunities, they may not fully substitute for the comprehensive professional experience and career development benefits provided by traditional internship programs.

Sample Pilot Micro-Internship Projects in Marketing

Although still at the piloting stage, micro-internship programs involving both on-campus and off-campus, for-profit and non-profit partners, have been creatively embedded in various classes across disciplines, university student service programs, functional units, and business operations. As micro-internship projects tend to be small and focus on a single business problem of the partner employer, multiple subsequent micro-internships from the same employer were also created to provide students with experiential learning opportunities in different business function areas of the same employer (Innovation Incubator, 2024).

In the area of marketing management, for example, a non-profit partner CHERP Solar Works located in the city of Pomona, has offered multiple projects for marketing students, such as the Funding Research project, Market Intelligence & Customer Needs research project, and digital marketing and sales projects. Through these projects, students get to apply the knowledge and skills gained from their respective marketing classes to the company's real business problems and offer solutions or recommendations to the operation and strategies for the company's development. Other off-campus partners in the past year or so include Sowing Seeds for Life community foodbank, Healed Women Heal Pomona, and Knowtion Health in Torrance.

On-campus partners/employers are also tapped to leverage their business needs with the accessibility of marketing students' skills. For example, Cal Poly Pomona Foundation, as the largest employer of student assistants on campus, offered multiple micro-internship projects through on-campus businesses such as *The Farm Store, Innovation Brew Works*, in the areas of marketing strategy consulting, retail and promotions, and digital marketing consulting, and business analysis projects. The university Career Center and Student Service offices also offered micro-internship projects to advance their student service goals such as projects facilitating student registration and retention interactive and digital marketing campaigns.

A PEDAGOGICAL EXPERIMENT

Class Structure Overview

We chose to pilot the micro-internship in the aforementioned career development course, IBM 2000. This course was designed to help students plan and prepare for career development. Adding the micro-internship to IBM 2000 would test students' job-related skills in a low-risk environment while providing an immersive learning experience by working with real employees.

The 15-week course is divided into two parts. The first part, spanning 8 weeks, provides essential tools and guidance to prepare students. Weekly lecture topics include career center resources, career paths in marketing and IB fields, student clubs, LinkedIn, and more. By the end of the first part, students should accomplish the following learning outcomes:

- Students will identify their own strengths and weaknesses in their personal qualifications.
- Students will recognize the career competencies identified by the National Association of Colleges and Employers.
- Students will recognize the available job search resources and tools on campus.
- Students will identify career prospects and training opportunities in each of the sub-areas of marketing management and international business.
- Students will select employers to target their desired industry.
- Students will produce their own job search materials (such as resumes, cover letters, portfolios).
- Students will choose a career track to pursue in either International Business or Marketing Management.
- Students will plan for engaging in clubs or other extra-curricular activities related to their major.
- Students will use LinkedIn for personal branding, job search, and networking.
- Students will develop mentoring relationships for professional growth and career success.

The micro-internship will take place in the second part of the course. Students will be assigned projects based on their skills and interests. They will be working in small groups for approximately eight weeks. Faculty members will coordinate between the employer and students while providing necessary support.

Student Readiness Survey

Since most students enrolled in the class are in their sophomore or junior years, their job-related skills vary. A main challenge in micro-internships is to identify suitable job opportunities for undergraduates. To better understand our students, we conducted a survey among students who enrolled in the same course of IBM 2000 during Fall 2024. The survey covers a broad range of questions related to students' previous work experience, levels of marketing knowledge, and job skills. A total of 68 students participated in the survey on Qualtrics in exchange for course credits. Survey results showed that 82% of participants had prior work experience, primarily in retail (28%), marketing promotion (21%), and sales (19%). Moreover, 46% of subjects had participated in an experiential learning project that involved real-world business projects such as conducting marketing research or designing digital media campaigns. Therefore, most students in IBM 2000 are confident about their knowledge and skills in marketing research and digital media areas.

Figure 1. Perceived Marketing Research Skills

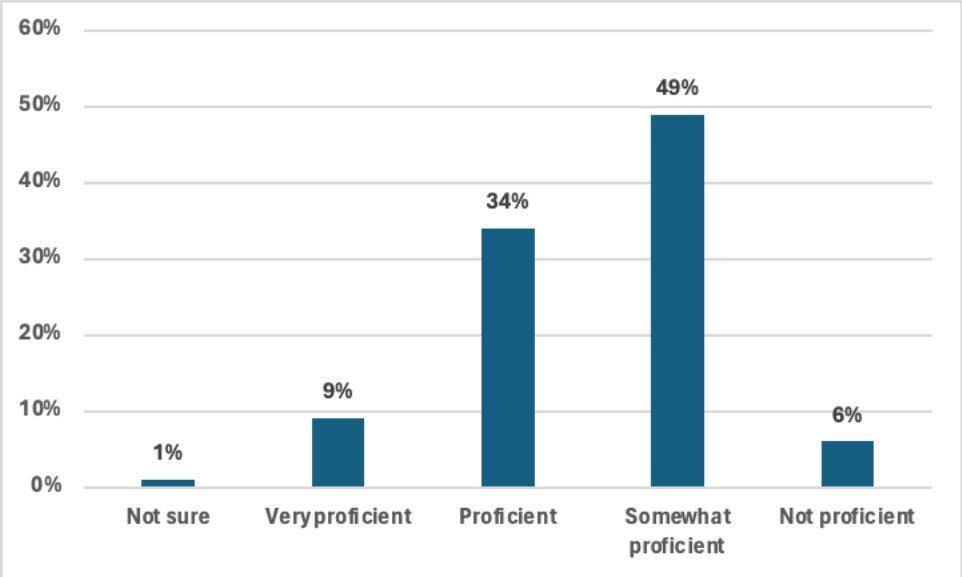

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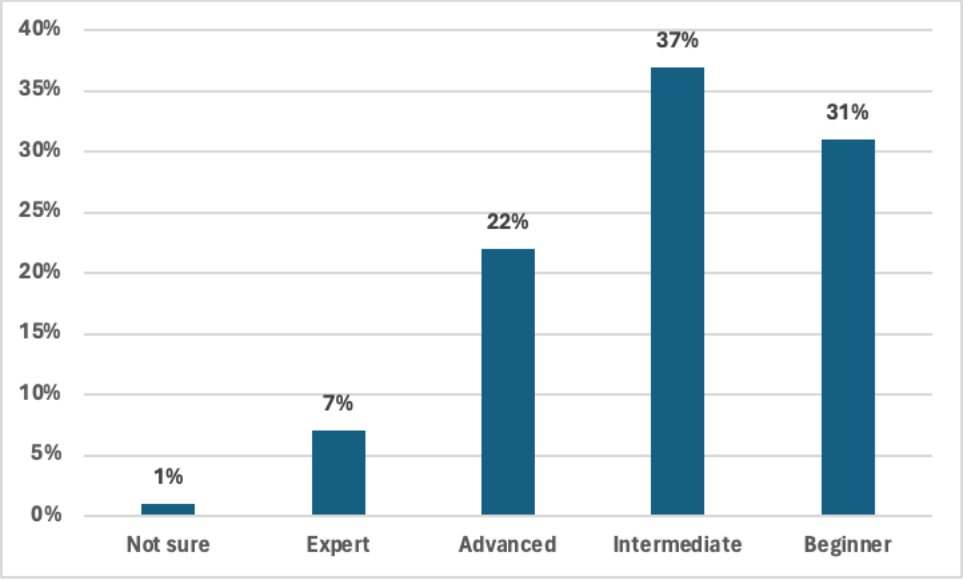
Figure 2. Perceived Digital Marketing Skills



Sample MI Projects

Based on the survey results, we developed two projects for the micro-internship so that students could choose one that best fits their levels of interests and job skills. The first project asks students to develop a strategic marketing research plan for a local business. Students work with business owners to conduct comprehensive marketing research that starts from conducting preliminary interviews, collecting and analyzing information, to providing recommendations based on both qualitative and quantitative research results. The project will help students develop practical skills, apply theoretical knowledge, and gain insights into real-world marketing challenges. Table 2 lists the details of the project plan:

Table 2. Sample Project 1: Marketing Research

Category	Details
Purpose	Introduce students to the research process, business reporting, and qualitative data collection and analysis. This project develops practical skills, applies theoretical knowledge, and provides insights into real-world marketing challenges.
Tasks	1. Create Interview Guidelines and Protocols**: Develop comprehensive guidelines with key questions, ethical considerations, and interview techniques. 2. Conduct Interviews: Perform interviews with restaurant staff, management, and customers. 3. Provide Transcripts: Transcribe the interviews accurately for analysis. 4. Perform Data Analysis**: Analyze transcripts to identify key themes, trends, and insights. 5. Propose Brand Positioning and Strategy Recommendations**: Develop actionable recommendations based on the analysis.
Duration	8 weeks
Deliverables	- Research Report: Includes an executive summary, methodology, findings, and recommendations. - Recommendations: Clear and feasible brand positioning and strategy recommendations.
Evaluation Criteria	- Quality and depth of interviews - Thoroughness and accuracy of data analysis - Feasibility and creativity of recommendations - Clarity and professionalism of the final report

The second project aims to help a local business optimize its digital marketing strategy on social media platforms. Students collaborate with a local business partner to analyze the company's social media presence and offer suggestions for improvements. The project will allow students to apply their digital marketing knowledge and analytical skills to solve real business problems. Table 3 outlines the project plan details:

Table 3. Sample Project 2: Social Media Marketing

Category	Details
Purpose	To create social media marketing targeted for each channel such as Instagram, Facebook, LinkedIn, YouTube and the website to gain followers and increase engagement.
Tasks	1. Provide recommendations for updating content on social media platforms (report) 2. Provide marketing plan for brand awareness and implementation 3. Review results in week 4 and make any necessary adjustments
Duration	8 weeks
Deliverables	1. Create content specific to each channel (if necessary) that is aimed at brand awareness. 2. Create content specific to each channel (if necessary) that is aimed at increased engagement. 3. Develop a marketing plan to promote brand awareness through each specific channel.
Evaluation Criteria	- Quality and depth interviews with client - Feasibility and creativity of recommendations - Clarity and professionalism of the final report - Group in-person presentation to the client

Summary of Micro-Internship Projects

Overall, four instructors offered six micro-internship projects to all 120 students IBM 2000 in Spring 2025, a course designated for lower division and junior students majoring in marketing management and international business. Three out of the six sections had one instructor teaching an individual section while the remaining three sections were taught by one instructor. All four instructors were given micro-internship project templates from the department chair through the University Office of Academic Innovation. The templates provided the framework for the micro-internships. Each template provided the following information: Project Name, Department, Start Date, End Date, Project Description (Goal, Key Objectives, Student Tasks, Deliverables, Project assessment, evaluation & results and Micro-Internship Digital Badge evaluation/results), Micro-Internship Location, Remote/On-site, Estimated Hours, Amount Student will receive, and Number of Micro-Internships.

The clients wanted the students to produce recommendations on a range of business areas such as general marketing strategy, competitor analysis, social media strategy, marketing research, SEO strategy, website and blog development, donor marketing and social media marketing. The students were slated to work 15 to 30 hours dependent on the details of micro-internship. The students would work in groups where each student would be paid a fee for the proposal given. The start dates for the micro-internships ranged from Week 7 to Week 9 in the semester and the end date for all micro-internships was Week 15.

Out of the 120 students enrolled in the class, 31 students chose to participate in a micro-internship project in the class. The students who did not participate were given an alternative assignment to complete. This assignment was valued at the same number of points as the micro-internship with regards to the overall class grade. Students reported that they opt out the embedded micro-internships due to their prior committee jobs part-time or even full-time outside of their regularly scheduled time for classes. The accessibility of students is one of the obstacles to offering micro-internships to all enrolled students.

The representatives from the University Office of Academic Innovation introduced the clients to the instructors and students through Zoom meetings. After the initial meeting, some of the instructors and students made visits to the client workplaces while other instructors and students primarily communicated with the client through Zoom and through e-mail. For example, one of the projects is to create social media content to promote brand awareness of a local therapy service provider. To do this, students visited the site to interview the business owner and employees,

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capture photos and video footage, and edit them into short and platform-optimized videos and images. The students provided preliminary drafts for the clients prior to the end date for the micro-internship. By doing so, the client was able to provide feedback. This helped ensure that the clients' expectations were met.

In Week 15, the student groups submitted their reports to the clients. The students also presented their reports either in person or through Zoom to the clients. All participating clients indicated their satisfaction with the presentations and deliverables given by the student interns.

One hundred and twenty students completed the exit survey in the last week of the semester. 26% of the students reported to have completed a micro-internship in the semester. Participating students spoke positively about their "learn by doing" experience through their micro-internships. 87% of the students reported micro-internships are helpful for their career development in their major program. In addition to the benefits of gaining valuable experience in specific business and marketing skills such as marketing research, web design, SEO, social media planning and content creation, many students had commented on the impact of the experience of improving their professionalism, presentation, content creation, teamwork and community relation building competencies in a real marketing team. Here are some sample comments students provide in their reflection of the micro-internship experience:

> "I gained a lot of experience navigating and working with a team, as well as directly working and presenting products to a specific client. I will benefit in the future by grasping a better understanding of a contractual relationship as well as the professionalism and expectations required when working with a client".
> "I love them! It provides the experience without the stress of applying to multiple schools and getting rejected. It is also an advantage for students who already have a busy schedule".
> "The micro-internship allowed me to practice my skills in marketing and taught me how to build a rapport with a client. This experience also taught me how to take suggestions on my work and turn them into action, helping me create the best product for the client."
> "The micro-internship was very fun. I was able to do a competitor analysis for the company right down the street of Cal Poly. This experience let me understand how a real marketing team would work. This even allowed me to even potentially have a summer internship with the company since they loved our work".

The faculty, who managed the students throughout the micro-internship, offered several comments about the exercise. One instructor stated the following, "It was a good experience, but that was in large part due to the group being small and I could give a lot of individual attention. Obviously if it were scaled to a larger group there would be a lot of sacrifices." Other comments from faculty were, "It's a great opportunity for students to work with clients," and "It was a good experience. I believe it was a positive experience for all parties involved."

Assessment Plan

Since the micro-internship is embedded in the IBM 2000 course, we designed the course learning assessment plan that incorporates the MI program. The assessment plan consists of weekly learning reflection, assignments, and MI project feedback.

To encourage students, we provide a digital badge as an incentive for students who received high grades (85% or higher) on all assignments (including micro-internship project) scores in the class. The digital badge certified students' effort and excellent achievement in the student learning outcomes laid out in this career preparation focused course. The department issued "IBM Career Explorer" digital badge is recognized and verifiable by the University Office of Academic Innovation. Students may include the badge on their LinkedIn, or other e-portfolio sites for personal branding, job search, and networking. Appendix 1 shows the example image of the digital badge.

Appendix 1: Digital Badge Example

In addition, we provided a final exit survey to collect students' feedback on their learning experience with each module of this career-focused course, and their suggestions for improvement in the future. The survey asked students to evaluate the helpfulness of course activities, including MI, and to rate the importance of essential career competencies identified by the National Association of Colleges and Employers (NACE), such as critical thinking, communication, teamwork, technology, leadership, professionalism, and career and self-development. This feedback will provide valuable insights into guiding future projects involving MI. A small percentage of the students' overall grade was allocated to students completing the final exit survey. This would help ensure that students would take one last time to reflect on their learning experiences in this course and towards their career development.

DISCUSSION: CHALLENGES AND FUTURE DIRECTIONS

Challenges

The pilot implementation of micro-internships in the IBM 2000 course has demonstrated significant potential in enhancing students' career readiness. However, it also faces many challenges. One of the significant challenges in expanding micro-internship programs is identifying and recruiting enough participating employers. Universities need to build strong relationships with local businesses, non-profits, and industry partners to create a steady pipeline of micro-internship opportunities. This requires dedicated resources and ongoing efforts to engage employers and demonstrate the value of micro-internships for their organizations.

In addition, as the number of micro-internships increases, maintaining the quality of these experiences becomes crucial. Universities must ensure that micro-internships provide meaningful, project-based work that aligns with students' academic and career goals. Establishing clear guidelines and expectations for both students and employers can help maintain high standards. Universities should offer training and resources to help students develop the skills and competencies needed to succeed in these roles. This includes workshops on professional communication, project management, and other relevant topics.

Furthermore, expanding micro-internship programs requires robust administrative support to manage logistics, match students with appropriate opportunities, and handle any issues that arise during the internships. Universities may need to invest in dedicated staff or leverage technology platforms to streamline these processes. This challenge is consistent with another study that recommended that universities should be open to expanding flexible and hybrid internship options which can also include micro-internship opportunities (Stowe, 2025). In our experiment, only 26% of the enrolled students were able to participate in the micro-internship program unfortunately.

Extending micro-internship models across disciplines may present additional challenges, as program design must be tailored to different curricular structures, learning objectives, and industry expectations. Faculty workload is another important consideration, as implementing and managing micro-internships requires significant time for employer outreach, student supervision, and assessment. Without appropriate support, these responsibilities may place additional strain on instructors. Finally, scaling such initiatives necessitates institutional investment in resources, including administrative support, coordination infrastructure, and potentially technology platforms to facilitate matching and monitoring. Addressing these factors will be essential for ensuring the sustainable expansion of micro-internship programs across diverse academic contexts.

Future Directions

Several areas warrant further exploration and development to maximize the impact of this initiative. Firstly, aligning micro-internship projects with course learning objectives and outcomes is essential for maximizing educational value. The pilot program is implemented in a career development class. It can be expanded to courses focusing on various functional knowledge in the future, such as advertising, marketing research, etc. Faculty should collaborate closely with employers to design projects that complement academic content and provide meaningful, real-world applications of theoretical knowledge.

Secondly, to fully understand the long-term benefits of micro-internships, longitudinal studies are also necessary. Tracking students' career trajectories post-graduation will provide valuable insights into how these short-term, project-based experiences influence employability, job satisfaction, and career advancement over time.

In conclusion, the pilot of micro-internships in the IBM 2000 course at California State Polytechnic University, Pomona, has proved to be promising in enhancing career readiness among students. By addressing the areas outlined

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above, future iterations of the program can further refine and expand this innovative approach, ultimately contributing to the development of a highly skilled and employable workforce.

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Bios:

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Manuscript Guidelines, Submission and Review Process

TOPIC AREAS (BUT NOT LIMITED TO THESE):

- Course design – current courses, new courses, new trends in course topics
- Course management – successful policies for attendance, homework, academic honesty …
- Class material
  - Description and use of new cases or material
  - Lecture notes, particularly new and emerging topics not covered effectively in textbooks
  - Innovative class activities and action-learning – games, active learning, problem based
- Major or emphasis area program design that is new or innovative.
- Assessment – all aspects including AACSB and university level assessment strategies and programs
- Integration of programs or courses with other academic disciplines
- Internship programs
- Business partnerships
- Successful student job placement strategies
- Any topic that relates to higher education business education.

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- See the Style Guideline page for specific instructions.
- Articles must make a contribution to business education innovation.
- Manuscripts can be any length. The first 10 pages are charged the current per page rate, and pages over 10 are charged half that rate.
- Articles can be either regular research papers, or shorter notes that succinctly describe innovative classroom teaching methods or activities.
- Manuscripts should be completely finished documents ready for publication if accepted.
- Manuscripts must be in standard acceptable English grammatical construction.
- Manuscripts should be in MS Office Word format. Word 2007 files are acceptable, as are earlier versions of Word. If you are using a new version of Word after Word 2007, save in Word 2007 format.

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- Manuscripts may not have been published previously or be under review with another journal.
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Manuscript review

- The editor and reviewers will review your submission to determine if 1) the content makes a contribution to innovative business education, 2) is of the proper page length, 3) is written in proper grammatical English, and 4) is formatted ready for publication.
- Submissions not meeting any of these standards will be returned. You are invited to make revisions and resubmit.
- If the submission meets the standards, the manuscript will be sent to two reviewers who will read, evaluate and comment on your submission.
- The editor will evaluate the reviews and make the final decision. There are 3 possible outcomes:
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    - Accept with minor revisions.
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If your paper is accepted

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An example is provided following these instructions.
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Authors are responsible for checking for correct grammar, construction and spelling. Authors are also responsible for formatting pictures, tables, and figures such that a pdf black and white file sent to the publisher will reproduce in a readable manner.

General Setup:

- All fonts other than exceptions noted below: Times New Roman. 10 point for text. Other sizes as noted below
- Margins: 1 inch on all sides of 8½x11 inch paper size.
- No headers or footers,m other than page numbers centered lower.
- Absolutely no footnotes or endnotes via footnote or endnote formatting. For footnotes or endnotes, place a number of the footnote in the proper location as a superscript. Then at the end of the paper or bottom of the page, add the footnote as text with a superscript number to correspond to that footnote.
- Page numbering bottom centered.
- No section breaks in the paper.
- No color, including url's. Format to black. No color in tables or figures. Use shading if necessary.
- All pages must be portrait orientation. Tables and figures in landscape orientations should be reformatted into portrait orientation.
- All paragraphs should be justified left and right, single spaced, in 10 point Times font, no indent on first line, l line between each heading and paragraph.
- One line between each paragraph.

Titles, Authors, and Headings:

- **Title centered 14 point bold**. One line between title and author's name.
- Authors: centered, 12 point. Name, affiliation, state, country.
- One line space to **ABSTRACT** (title 10 point, bold, all capitalized, aligned left; text of abstract 10 point, no bold)
- After **ABSTRACT**, one line space, then **Keywords**. Followed by one line space to first major heading.
- **HEADINGS, MAJOR**, 10 point, bold, all capitalized, aligned left.
  The specific headlines will be based on the content of the paper, but major sections should at a minimum include an abstract, keywords, introduction, conclusion, and references.
- **Sub-headings**: 10 point, bold, first letter capitalized, no line to following paragraph. Align left.
- *Third level headings: Italic*, 10 point, first letter capitalized, no line to following paragraph. Align left.
- **Keywords:** heading: 10 point, bold, first letter capitalized, no line to following paragraph. Align left. Your list of keywords in 10 point, no bold.

Tables, Figures and Graphs:

- All fonts 10 point.
- Numbered consecutively within each category. Table 1, Figure 1 etc.
- Title: 10 point, bold, left justify title, one space, then the table, figure, etc.
- Example: **Table 1: Statistical Analysis**

References:

- APA format when citing in the text. For example (Smith, 2009).
- References section: 8 point font, first line left margin, continuation lines 0.25 inch indent. Justify left and right. No line spacing between references. List alphabetically by first author.
- Specific references: Last name, First initial, middle initial (and additional authors same style) (year of publication in parentheses). Title of article. *Journal or source in italics.* Volume and issue, page number range.
- Example: Clon, E. and Johanson, E. (2006). Sloppy Writing and Performance in Principles of Economics. *Educational Economics.* V. 14, No. 2, pp 211-233.
- For books: last name, first initial, middle initial (and additional authors same style) (year of publication in parentheses). *Title of book in italics.* Publisher information.
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Example (note that this example represents a change from previous style guides)

Evidence to Support Sloppy Writing Leads to Sloppy Thinking (14 pt bold)

Peter J. Billington, Colorado State University - Pueblo, Colorado, USA (12 point)
Terri Dactil, High Plains University, Alberta, Canada

ABSTRACT (10 point, bold, all capitalized, left justified)

(text: 10 point Times font, no indent, justified, single space, 150 words maximum for the abstract)
The classic phrase "sloppy writing leads to sloppy thinking" has been used by many to make writers develop structured and clear writing. However, although many people do believe this phrase, no one has yet been able to prove that, in fact, sloppy writing leads to sloppy thinking. In this paper, we study the causal relationship between sloppy writing and sloppy thinking.

Keywords: sloppy writing**,** sloppy thinking **(10 point, bold title, first letter capitalized, left justified).**

INTRODUCTION (10 point, bold, all capitalized, left justified).

The classic phrase "sloppy writing leads to sloppy thinking" has been used by many to make writers develop structured and clear writing. However, since many people do believe this phrase, no one has yet been able to prove that in fact, sloppy writing leads to sloppy thinking. Is it possible that sloppy writing is done, even with good thinking. Or perhaps excellent writing is developed, even with sloppy thinking.

In this paper, we study the writing of 200 students that attempts to test the theory that sloppy writing leads to sloppy thinking.

PREVIOUS RESEARCH

The original phrase came into wide use around 2005 (Clon, 2006), who observed sloppy writing in economics classes. Sloppy writing was observed in other economics classes (Druden and Ellias, 2003).

RESEARCH DESIGN

Two hundred students in two business statistics sections during one semester were given assignments to write reports on statistical sampling results. The papers were graded on a "sloppiness" factor using…

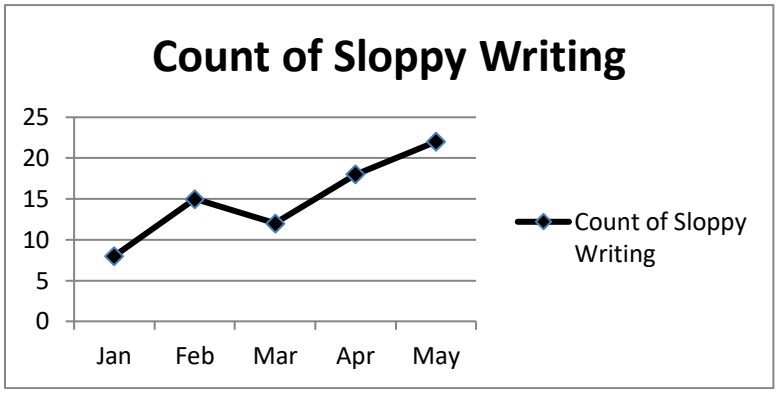
Data Collection (Sub-heading, bold but not all caps, 10 point, aligned left, bold, no line after to paragraph)
The two hundred students were asked to write 2 short papers during the semester…

Data Analysis(Sub-heading, bold but not all caps, 10 point, aligned left, bold, no line after to paragraph)
The two hundred students were asked to write 2 short papers during the semester…

DISCUSSION

The resulting statistical analysis shows a significant correlation between sloppy writing and sloppy thinking. As noted below in Figure 1, the amount of sloppy writing increases over the course of the spring semester.

Figure 1: Sloppy Writing During the Semester (10 pt bold, 1 line after to table, left justify)



The count results were compiled and shown in Table 1 below.

Table 1: Counts of Good and Sloppy Writing and Thinking (bold, 1 line after to table, left justify)

	Good Thinking	**Sloppy Thinking**
Good Writing	5	22
Sloppy Writing	21	36

*-Indicates significance at the 5% level)

As Table 1 shows conclusively, there is not much good writing nor good thinking going on.

CONCLUSIONS

The statistical analysis shows that there is a strong relation between sloppy writing and sloppy thinking, however, it is not clear which causes the other…

Future research will try to determine causality.

REFERENCES (title10 point, all caps, bold, align left, one line to first reference)
(1line spacing) (All references 8 point, indent second line 0.25 inch)

Clon, E. (2006). Sloppy Writing and Performance in Principles of Economics. *Educational Economics*. V. 14, No. 2, pp 211-233.
Devad, S. and Flotz, J. Evaluation of Factors Influencing Student Class Writing and Performance. *American Journal of Farming Economics*. V. 78, Issue 3, pp 499-502.
Druden, G. and Ellias, L. (1995). *Principles of Economics*. New York: Irwin.

(short bio section optional, can run longer than these examples; removed before sent to reviewers)

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Endnote: (do not use word footnote or endnote formatting to accomplish this; see comments above)

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