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OVERCOMING THE CHALLENGES OF QUANTITATIVE LEARNING: INSIGHTS FROM FINANCE STUDENTS' EXPERIENCES

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Abstract

This study examines the challenges faced by finance students in quantitative courses, focusing on their perceptions, experiences, and emotional responses. Quantitative courses are often met with resistance due to misconceptions about their relevance, low self-confidence and anxiety. In addition, ineffective teaching methods that emphasize abstract theories over practical applications contribute to student disengagement. A qualitative study with focus groups was conducted with students from the Zagreb School of Economics and Management to gain insights into their experiences. Key findings highlight the importance of engaging teaching methods that incorporate real-world examples, address students' emotional barriers and use interactive strategies to promote deeper understanding. Students reported that they felt more motivated when they could relate course content to their career aspirations, suggesting that aligning quantitative courses with real-world business scenarios can improve student engagement. The study emphasizes a holistic approach to teaching

quantitative subjects by combining supportive teaching methods, relevant course content, and innovative pedagogical techniques to better equip students with essential analytical skills for their future careers.

Keywords: Quantitative learning, finance education, student perceptions, teaching methods, math anxiety, practical application

INTRODUCTION

Quantitative courses such as math, statistics, and finance are essential for building the analytical skills required in business schools' curricula (Cegielski & Jones-Farmer, 2016; McClure & Sircar, 2008). Still, there is often a visible resistance to studying quantitative courses from the students' perspective (Owens et al., 2020; Boud & Falchikov, 1989). According to previous studies, this resistance has several causes, including misconceptions about the relevance of these courses, self-confidence and anxiety issues, and a lack of supportive teaching methods (Kucukkaragoz & Meylani, 2025; Maclellan, 2014; Dembo & Seli, 2004). Previous studies have shown that business students in particular often avoid quantitative courses because they believe they are unnecessary for their future careers (He et al., 2022). Many students assume that fields such as marketing or human resources focus primarily on soft skills, which leads them to undervalue quantitative skills that are essential for success in today's competitive working environment (Reinhardt, 2023). These misaligned expectations, shaped by a limited understanding of the tasks involved in real working environment potentially lead to a widespread aversion to quantitative courses in business degree programs.

From the literature in the field we see that students' self-confidence or self-efficacy play an important role in dealing with these issues. Studies consistently show that students with low confidence in their math abilities tend to avoid courses that they perceive as complex (Dabas et al., 2021; Jameson & Fusco, 2014; Ashcraft, 2002). This problem is prevalent among female students, who often report higher levels of anxiety and lower self-confidence in their quantitative skills (Chan & Hu, 2023). Negative experiences with math further deepen these psychological barriers, creating a cycle of avoidance and poor performance in quantitative courses (Ashcraft, 2002). Unfortunately, business school faculty often find it difficult to effectively address these issues, which only reinforces students' reluctance to engage with the essential quantitative material (Muljana et al., 2021; Son et al., 2020). As a result, low self-confidence remains a significant barrier to success in these courses (Maclellan, 2014; Dembo & Seli, 2004).

The way these courses are taught also influences student attitudes. Traditional lecture-based instruction often fails to meet students' expectations for practical, real-world application in

business education (Reinhardt, 2023). Many students find it challenging to relate abstract mathematical concepts to their career aspirations, leading to decreased motivation. Previous research suggests that integrating real-world examples and business applications into the curriculum significantly improves student engagement (Salazar, 2019). In addition, innovative teaching methods such as interactive activities and anxiety-reducing strategies such as coloring mandalas help students feel more comfortable and perform better in quantitative courses (Salazar, 2019). However, without consistent innovation in teaching approaches, students continue to view these courses as too theoretical and disconnected from their career path (He et al., 2022; Sahu, 2020; Uppal, 2017).

In summary, students' reluctance to take quantitative courses in business programs is due to a mixture of misconceptions, low self-confidence and outdated teaching methods. These issues can be addressed through targeted interventions, such as making course content more relevant to the real world of business, providing better support for students with low confidence, and using more engaging, interactive teaching strategies that can significantly improve student attitudes. By aligning quantitative courses more closely with business career expectations, educators are helping students build the essential skills they need to succeed in an increasingly data-driven world (Cao et al., 2020; Ritchie et al., 2013; Sahu, 2020).

To better address and better understand these issues, we conducted a qualitative study with business and economics students and use a focus group to gain deeper insights into their perceptions and experiences with quantitative courses. This focus group provided us a valuable first-hand insight into the issues students face, from misconceptions about the relevance of the quantitative courses to personal fears and frustrations with teaching methods used by faculty members. By listening directly to students in a collaborative environment, we identified actionable strategies to make quantitative courses more accessible and practical, emphasizing courses in finance.

BACKGROUND

Many students have difficulties studying quantitative courses such as mathematics, statistics and finance, which is well documented in previous literature (Owens et al., 2020; Boud & Falchikov, 1989). In line with previous studies, there is also a stream of literature suggesting that experienced difficulties in studying quantitative courses are associated with a dislike of quantitative courses related to a complex mix of psychological, social and didactic factors (Kucukkaragoz & Meylani, 2025; Maclellan, 2014; Dembo & Seli, 2004). For example, previous studies indicate that math anxiety, difficulty with abstract concepts, and a perceived lack of practical relevance are significant barriers to completing quantitative courses (Dowker et al.,

2016; Chinn, 2020; Ramirez et al., 2013). In addition, previous studies emphasize that ineffective teaching methods, high cognitive demands and social stereotypes further discourage students from taking quantitative courses (Hoffman, 2010; Geary, 2011).

To be more specific, previous studies show that math anxiety is one of the main reasons why students struggle with quantitative courses (Dabas et al., 2021; Jameson & Fusco, 2014; Ashcraft, 2002). This anxiety manifests itself in the form of apprehension, fear, and tension when students are confronted with quantitative (math) problems (Ashcraft, 2002). Early negative experiences, such as repeated failure in elementary school, often contribute to the development of this anxiety (Maloney & Beilock, 2012; Lyons & Beilock, 2012). When anxiety interferes, it reduces the capacity of working memory, which is crucial for problem solving and reasoning in quantitative courses (Ashcraft & Krause, 2007; Wang et al., 2020). This vicious cycle of anxiety and underachievement is a significant barrier to learning, which later proves to be a hindrance when studying quantitative courses. Therefore, overcoming math anxiety is considered a crucial step in improving students' attitudes and performance in quantitative courses (Beilock & Maloney, 2015).

The abstract nature of quantitative courses poses additional challenges for many students. In these courses, students must master symbolic representations and complex concepts that do not always have immediate applications in the real world (Núñez, 2017). Previous studies suggest that this abstraction makes it difficult for students to relate to the content, leading to frustration and disinterest (Mason, 2016; Attard, 2011). Effective teaching strategies, including visual aids and contextualized examples, have been shown to bridge this gap and promote better understanding (Bruner, 1966; Mayer, 2002; Zacharia, 2015). Nevertheless, the lack of such support in many courses exacerbates students' difficulties in grasping abstract ideas, leading to disinterest (Wilson et al., 2011; Jonassen & Strobel, 2006).

The other reason students dislike quantitative courses is because it seems like the material covered is never used (Pekrun et al., 2002; Williams & Ceci, 1997). Most of the students (unless they are going into a STEM field) do not see the purpose of taking advanced courses like finances or statistics (Harackiewicz et al., 2012). According to previous studies, students are more likely to be receptive to the material if they can make the connection between the material and their own personal and professional goals (Ambrose et al., 2010; Eccles & Wang, 2016). But when the classes are memorization-based and do not show the real world connections, students tend not to be interested (Boaler, 2008; Lave, 1988). The absence of any obvious practical advantages serves to further the idea that these subjects are completely unrelated to the student's life (Harackiewicz et al., 2016).

Quantitative courses inherently require a high cognitive load that can overwhelm students, especially those who lack in-depth knowledge of the subject (Sweller, 1988). These courses require memorization of formulas and the ability to apply these concepts in diverse and often complex scenarios (Paas, Renkl, & Sweller, 2003). When students are confronted with too much complexity at once, they experience cognitive overload, which leads to frustration and reduces their ability to learn effectively (Kirschner, Sweller, & Clark, 2006; Schnotz & Kürschner, 2007). Breaking tasks into smaller, more manageable components has been recommended as a strategy to reduce cognitive load and improve learning outcomes (Van Merriënboer & Sweller, 2005; Chandler & Sweller, 1991).

There are also social and cultural reasons why students have negative feelings toward the quantitative disciplines. Mathematics and its related fields are usually seen as a very hard discipline that is only meant for the few who are "naturally gifted" (Wang Degol, 2017). These stigmatisms in particular deter women and minority groups from the belief that they are not as capable or as destined to excel in these curriculums (Beilock et al., 2010; Hyde Mertz, 2009). All of the research shows that students who come to believe these things are more likely to avoid quantitative courses, and this only serves to widen the gender/diversity gap in the STEM fields even more (Hyde, 2014; Nosek et al., 2009). Researchers argue for the promotion of a growth mindset that emphasizes that math skills can develop through effort to combat these negative stereotypes and promote broader engagement (Dweck, 2006; Yeager Dweck, 2012).

In any subject timely feedback is so important to the success of the student, and quantitative courses are no different. This is not the case with qualitative subjects where feedback is usually more immediate, but in quantitative courses students can really suffer if they don't get any immediate feedback as to their progress (Butler Winne, 1995). As these subjects often build on increasingly complex concepts, falling behind can be detrimental. As Wiliam (2011) and Nicol and Macfarlane-Dick (2006) have noted, when one only concentrates on the right and wrong answers, with no constructive analysis of the learning process, frustration and apathy grow. Accordingly, feedback mechanisms that work are integral to a student's ability to grasp intricate subject matter (Hattie & Timperley, 2007).

Performance exams have been found to be a major cause of student's anxiety and dislike for quantitative classes. The emphasis on right answers instead of understanding causes students to use surface approaches to learning such as cramming or memorization instead of seeking deeper meaning (Guskey, 2007; Harlen, 2007). The stress that this places on performance and not understanding does not only make the student's more stressed out, but it also takes away from their intrinsic motivation to learn the material (Harlen, 2007; Shepard, 2000). Reforming assessment strategies to emphasize conceptual understanding and reduce

the pressure to perform has been shown to promote more meaningful learning and reduce anxiety (Swan, 2006; Andrade & Brookhart, 2020).

There are many reasons why students don't like quan courses, some psychological, some pedagogical, some social. Math phobia, poor pedagogical techniques, cognitive overload, and social stigma all contribute to the deterrence of students from these fields. This requires a holistic approach, supportive instructional practices, not overwhelming cognitive loads, and a growth mind set. Through these methods, teachers can change student attitude toward numerical courses for the better, and thus promote better grades and interest in the subject (Hattie & Donoghue, 2016).

METHODOLOGY

Based on the relevant literature, we developed a qualitative study using focus groups with open-ended questions as an effective approach to gaining rich, in-depth insights from students as our participants. This research method allowed us to explore participants' experiences, perceptions, and motivations in an interactive and conversational setting. For example, in a study of business students' feedback preferences, Rowe and Wood (2008) used focus groups to allow students to express detailed thoughts on teaching methods and learning outcomes in guided discussions. Open-ended questions in focus groups allow students to express nuanced views without constraints and foster a sense of openness that can lead to insightful responses and collective reflection. Such flexibility is crucial to uncovering both individual and group perspectives. This is demonstrated by studies such as Du Preez's (2015) investigation of open-book assessments in accounting education, which demonstrated the effectiveness of open-ended questions in uncovering complex student attitudes and insights.

In addition, focus groups in business and economics education provide an invaluable approach to identifying patterns and themes in student responses that provide a holistic view of the educational experience. Studies such as Sultan and Wong's (2013) on quality of service in education highlight the effectiveness of open focus group discussions in deciphering students' values and expectations in the educational environment. Similarly, Mearman et al. (2011) used focus groups to explore business students' views on pluralism in education, using open-ended questions to allow participants to contribute different perspectives on the curriculum. Such qualitative approaches offer depth and flexibility. They provide insights that traditional surveys may miss and support pedagogical improvements that are tailored to the actual needs and experiences of students.

We conducted a two-hour focus group with an international group of 26 students as part of the Personal Finance course taught at the Zagreb School of Economics and Management

(ZSEM) in 2024. The ZSEM was selected as the research site due to its reputation as a leading institution for higher education in business and economics in Croatia. ZSEM is known for its focus on practical, real-world learning and its emphasis on the development of students' quantitative and analytical skills. This aligns directly with the objectives of the study, which aims to explore the challenges students face in quantitative courses. The presence of a diverse student body and experienced faculty provided an ideal context to analyze the relationship between teaching methods, student motivation, and the learning experience in quantitative courses. Additionally, the existing partnership with ZSEM enabled the researchers to access participants and conduct the study in a familiar academic environment.

The sampling approach adopted for this study was purposive sampling, a non-probability sampling method commonly used in qualitative research. This approach was chosen to ensure the selection of participants who could provide in-depth insights into the research topic. The researchers intentionally selected 26 students enrolled in the Personal Finance course at ZSEM, as these students were directly engaged with quantitative coursework and therefore had relevant experiences to share. The use of focus groups with purposive sampling allowed the researchers to target individuals with shared characteristics, such as exposure to quantitative learning, ensuring the collection of rich, detailed data. This method facilitated the exploration of students' perceptions, attitudes, and learning experiences, which were central to the objectives of the study.

The focus group session was audio recorded. To analyze the data collected in the audio recording, we first transcribed the data. Second, we carefully reviewed the transcript to familiarize ourselves with the data and identified key themes. Next, we systematically coded the data and labeled important parts of the discussion with concise keywords such as "teaching methods" or "student motivation." After coding, we grouped related codes into broader themes, such as "effective teaching" or "challenges in quantitative courses," and ensured that these themes reflected the main topics discussed. Once the themes are defined, we review and refine them to ensure accuracy and clarity. Finally, we analyze each theme in detail, using direct quotes from the transcript to support our findings, and report the results in a coherent, structured narrative. Throughout this process, we focus on understanding students' experiences and the meanings they attach to them.

RESULTS

We analyzee the focus group discussion to understand the experiences of students in quantitative courses, identifying several critical themes. These themes include the role of teaching methods and professors, challenges specific to quantitative courses, emotional

responses to academic experiences, study strategies, and the role of technology in learning. Each of these areas offers a deeper understanding of how students navigate the demands of quantitative education, and we support our findings with references from existing literature and we show them summarized in Table 1.

Table 1. Summary of themes, quotes and insights

Theme	Supporting quote	Provided insight
Impact of Teaching Methods and Professors	"A good professor needs to be able to hold the class's attention... using anecdotes to relate everything back to the real world." (Speaker 3)	Engaging teaching methods enhance student interest and understanding.
	"He tends to treat us like children sometimes, like we're in school, not university." (Speaker 2)	A professor's attitude and approach can undermine students' sense of maturity and independence in higher education.
Challenges in Quantitative Courses	"I studied very hard... it was like an open-book exam, and I failed it. The book didn't help at all." (Speaker 13)	Students often feel overwhelmed despite putting in significant effort.
	"The exercises we did in class didn't match what was on the exam, and I couldn't connect the dots." (Speaker 2)	The disconnect between classroom exercises and exams creates additional challenges for students.
Student Motivation and Emotional Responses	"I expected a better grade, but it didn't pay off." (Speaker 9)	Frustration arises when effort does not align with academic outcomes.
	"The professor was very smart, but when we didn't know the answer, he made us feel dumb." (Speaker 9)	Intellectual competence must be paired with emotional intelligence for effective teaching.
Study Strategies and Learning Techniques	"I rewrite the entire thing again and again... that's how I learn." (Speaker 3)	Repetition and active learning strategies are key techniques for mastering difficult content.
	"I try to do all the exercises without looking at the answers, and then I check to see how I did." (Speaker 7)	Self-assessment through exercises helps solidify understanding and application of concepts.
Role of Technology in Learning	"YouTube is great for solving exercises and looking for real-world examples." (Speaker 2)	Students rely on digital tools to supplement traditional learning methods.

First of the themes we derive from our data are teaching methods and professor-student interactions that significantly shape how students engage with quantitative courses. Participants consistently emphasize that professors who use real-world examples to make abstract concepts relatable help students remain engaged. One student explains, "A good professor needs to be able to hold the class's attention... using anecdotes to relate everything back to the real world" (Speaker 3). This supports findings by Hattie (2009), who shows that connecting learning to practical examples helps students better understand complex materials and fosters deeper engagement. In contrast, students report negative impacts when professors adopt a condescending tone or fail to meet students at their level of understanding. One participant remarks, "He tends to treat us like children sometimes, like we're in school, not university" (Speaker 2), reflecting how such interactions can undermine student autonomy. Patrick, Hisley, and Kempler (2000) note that students are more motivated and perform better when they feel respected as independent learners.

The challenges of quantitative courses emerge strongly in the discussion, with many students expressing feelings of being overwhelmed. These courses often involve complex concepts and high workloads, leading to cognitive overload. One student explains, "I studied very hard... it was like an open-book exam, and I failed it. The book didn't help at all" (Speaker 13). This aligns with Sweller's (1988) cognitive load theory, which describes how the mental effort required to process complex information can impede learning if the material is not properly scaffolded or broken down. Furthermore, participants highlight a perceived disconnect between classroom exercises and exam content, which exacerbates their challenges. One student notes, "The exercises we did in class didn't match what was on the exam, and I couldn't connect the dots" (Speaker 2). This echoes Schaufeli and colleagues (2002), who report that academic burnout often results from high demands and inconsistent expectations in coursework and assessments.

Students' emotional responses to their academic efforts also play a critical role in their overall experience. Frustration arises when hard work does not yield the desired academic outcomes. As one student shares, "I expected a better grade, but it didn't pay off" (Speaker 9), expressing a common feeling of disillusionment when results do not match expectations. Pekrun, Goetz, Titz, and Perry (2002) emphasize that frustration and negative emotions can detract from learning and reduce motivation. Despite this, moments of satisfaction arise when students succeed in mastering difficult material, reinforcing their motivation to continue. For instance, one participant notes, "I find a certain amount of satisfaction when I actually solve an equation… when you manage to solve it by yourself, it feels like a payoff" (Speaker 3). This supports the findings of Pekrun and colleagues (2007), who suggest that positive emotional

experiences—such as the sense of accomplishment from overcoming academic challenges—can enhance student engagement and motivation.

To cope with the demands of quantitative courses, students employ various learning strategies, focusing primarily on repetition and self-assessment. One student mentions, "I write everything down... that's how I learn" (speaker 3), emphasizing the role of repetition in consolidating memory and understanding. Roediger and Butler (2011) emphasize the effectiveness of memorization exercises and repetition in promoting long-term retention of complex material. Self-assessment also proves to be an important technique as students use it to check their understanding of course content. One participant explains, "I try to do all the exercises without looking at the answers, and then I check how I did" (Speaker 7). Zimmerman (2002) states that self-regulated learning strategies such as self-assessment help students to recognize gaps in their knowledge and adjust their learning accordingly.

Technology plays a dual role in students' academic experience: it provides valuable resources but also contributes to information overload. Participants frequently mention that they rely on platforms such as YouTube to supplement their learning. One student notes, "YouTube is great for completing assignments and looking for real-world examples" (Speaker 2), demonstrating how digital tools can help students understand complex concepts. Means, Toyama, and colleagues (2010) suggest that blended learning environments that integrate traditional and digital learning resources can improve student learning outcomes by providing multiple ways for students to access and engage with the material. However, students also report feeling overwhelmed by the abundance of resources provided by professors, including textbooks, videos, and social media posts. One participant says, "Sometimes we are overwhelmed with the information — professors give us textbooks, YouTube videos, Instagram posts, and more, and it's just too much" (Speaker 8). This observation aligns with Sweller's (1988) theory of cognitive load, which explains that an overload of information, even if well-intentioned, can lead to cognitive overload and hinder learning.

Overall, these themes highlight the complex factors that influence students' experiences in quantitative courses. From the significant role of professors to the impact of technology and emotional responses, our analysis shows that students navigate a range of challenges that affect their engagement, motivation, and academic performance.

DISCUSSION

The findings from our focus group analysis align closely with existing research on students' difficulties in quantitative courses, particularly within finance-related education. We identify several interrelated themes: challenges with professor-student interactions, the abstract

and cognitively demanding nature of quantitative courses, emotional responses to academic performance, study strategies, and the role of technology. These themes highlight psychological, pedagogical, and social factors that contribute to students' challenges in engaging with these subjects.

Professor-Student Interactions

We observe that professor-student interactions play a crucial role in shaping students' experiences with quantitative courses. Many students emphasize the importance of professors making complex material accessible and relatable. Several participants appreciate when professors use real-world examples to help students grasp abstract concepts. This approach aligns with research by Bruner (1966) and Mayer (2002), who emphasize that “using concrete examples and visual aids bridges the gap between abstract concepts and student comprehension”. As one student notes, “A good professor needs to be able to hold the class’s attention... using anecdotes to relate everything back to the real world” (Speaker 3). This underscores the importance of applied learning, consistent with findings by Ambrose and colleagues (2010), who show that students engage more deeply when they see the material's relevance to their personal or professional goals.

On the other hand, negative interactions, such as condescending attitudes or insufficient support, often demotivate students. One participant comments, “He tends to treat us like children sometimes, like we’re in school, not university” (Speaker 2). This observation aligns with research by Patrick, Hisley, and Kempler (2000), who find that “students are more motivated when treated as independent learners”. Furthermore, Weinstein, Acee, and Jung (2011) emphasize that a positive, supportive learning environment significantly enhances student motivation and engagement.

Abstract Nature and High Cognitive Load of Quantitative Courses

We also find that the abstract nature of quantitative courses poses significant challenges. Many students struggle with symbolic and complex concepts that lack clear connections to real-world applications. One participant explains, “The exercises we did in class didn’t match what was on the exam, and I couldn’t connect the dots” (Speaker 2). This difficulty resonates with Núñez (2017), who notes that “abstract mathematical and statistical concepts can alienate students, particularly when practical analogies are missing”. Additionally, Skemp (1976) and Boaler (2008) argue that incorporating real-life examples into instruction helps students better engage with and understand abstract material.

The high cognitive load imposed by quantitative courses further complicates students' learning experiences. Many participants describe feeling overwhelmed by the sheer volume of information presented. One student remarks, “Sometimes we’re overwhelmed with information—professors give us textbooks, YouTube videos, Instagram posts, and more, and it’s just too much” (Speaker 8). This reflects Sweller’s (1988) cognitive load theory, which explains that “excessive complexity overloads students' working memory, leading to frustration and disengagement”. Paas and colleagues (2003) highlight that breaking complex tasks into smaller, more manageable parts reduces cognitive burden and enhances learning outcomes. We observe that such scaffolding could alleviate some of the cognitive strain students face, as supported by Kirschner, Sweller, and Clark (2006), who argue that limiting extraneous information enables students to focus on core concepts more effectively.

Emotional Responses to Academic Performance

We identify that emotional responses to academic challenges play a significant role in shaping students' attitudes toward quantitative courses. Many students express frustration when their efforts do not translate into the desired grades. One participant reflects, “I studied very hard... it was like an open-book exam, and I failed it” (Speaker 13). This sentiment aligns with research by Pekrun and colleagues (2002), which shows that “negative emotions, such as frustration and anxiety, can impair students’ working memory and hinder performance”. Math anxiety, a pervasive issue in quantitative learning, emerges as a significant factor in our analysis. As Ashcraft (2002) and Hembree (1990) demonstrate, students experiencing math anxiety are caught in a feedback loop where anxiety impairs performance, leading to further disengagement.

Despite the frustration, some students also report feelings of satisfaction when they successfully solve difficult problems. One participant states, “I find a certain amount of satisfaction when I actually solve an equation… when you manage to solve it by yourself, it feels like a payoff” (Speaker 3). This aligns with Dweck’s (2006) theory of a growth mindset, which suggests that students who view their abilities as developable through effort are more resilient and likely to persist through challenges. Encouraging a growth mindset in quantitative courses could therefore help students build resilience and reduce the impact of negative emotions on learning outcomes.

Study Strategies and the Role of Technology

In our focus group, students describe various study strategies, with repetition and self-assessment emerging as dominant methods. One student explains, “I rewrite the entire thing

again and again... that's how I learn" (Speaker 3). This reliance on repetitive strategies is consistent with Roediger and Butler's (2011) findings that "repetition and retrieval practice significantly enhance long-term retention, particularly in subjects requiring complex problem-solving". However, the emphasis on rote repetition suggests that many students may be engaging in surface learning rather than developing deeper conceptual understanding, a pattern also observed by Biggs (1999), who highlights the limitations of surface-level approaches in achieving mastery of complex material.

Technology plays a complex role in students' learning experiences. While digital resources such as YouTube are often seen as valuable tools for supplementing classroom learning, some students report feeling overwhelmed by the abundance of available resources. One participant remarks, "YouTube is great for solving exercises and looking for real-world examples" (Speaker 2), but others feel overloaded by the volume of platforms and resources they are expected to use. Mayer and Moreno (2003) caution that multimedia elements, when overused or not carefully integrated, can contribute to cognitive overload. This highlights the importance of educators carefully curating digital tools to ensure that they support, rather than hinder, student learning.

CONCLUSION

Our study sheds light on the various challenges students face in quantitative courses, especially in finance-oriented education. By conducting focus group discussion, we uncovered several core issues that contribute to students' difficulties, including barriers to effective interaction with professors, the complex and demanding nature of the material in financial courses, emotional responses to academic pressure, and different learning strategies and technology use in finances. These findings not only support the results of previous research, but also provide a more nuanced understanding of the specific obstacles that finance and economics students face in quantitative learning environments.

One important finding from our study is the importance of constructive interaction between professor and student. We found that clear communication and the use of real-world examples significantly improve students' understanding of abstract quantitative concepts. In contrast, negative interactions, such as dismissive behavior or lack of support, can lead to student disengagement and decreased motivation. This emphasizes the need for professors to create a supportive, accessible learning atmosphere where complex ideas are presented in an approachable way. Bruner (1966) and Mayer (2002) previously suggested that applied learning techniques and evidence of relevance to the real world are critical to promoting student engagement in quantitative courses.

We have also found that the abstract and cognitively demanding nature of quantitative coursework presents a significant challenge. Many students have difficulty connecting theoretical concepts to practical applications, and the sheer volume of information can be overwhelming. This is consistent with Sweller's (1988) theory of cognitive load, which posits that excessive complexity can overload working memory and lead to frustration. Our results suggest that breaking down complex material into manageable steps, as proposed by Paas and colleagues (2003), can reduce cognitive load and lead to better learning outcomes.

Emotional reactions to academic performance present another difficulty in quantitative courses. Feelings of anxiety, frustration, and disappointment are common when students do not achieve the desired outcomes, which can lead to disinterest over time. These emotional responses are well documented (e.g. Ashcraft, 2002; Pekrun et al., 2002), particularly the way in which anxiety can create a cycle of disengagement. However, some students report feeling satisfied when they have mastered difficult material, suggesting that fostering a growth mindset (Dweck, 2006) may help students face challenges with resilience and develop a more positive attitude toward quantitative learning.

Finally, our study shows how learning strategies and technology influence students' experiences. While many rely on repetition and self-assessment, some feel overwhelmed by the multitude of digital resources available. This emphasizes the need for thoughtful selection of learning tools to avoid cognitive overload (Mayer & Moreno, 2003). Technology can be a valuable tool, but only if it is used selectively and in a way that truly benefits students' learning processes.

To summarize, our research points to a holistic approach to improving the learning experience in quantitative courses. By enhancing instructor-student interactions, managing cognitive load, addressing emotional factors, and thoughtfully integrating technology, instructors can create a conducive and engaging learning environment. Our findings, supported by the literature, highlight effective strategies to help students overcome challenges in quantitative courses. They pave the way for future research to develop targeted interventions in business and finance education that improve student engagement and learning outcomes.

Future research could explore the long-term impact of specific teaching interventions on student performance and engagement in quantitative courses. Additionally, further studies could investigate how the use of adaptive learning technologies and personalized learning pathways affects students' ability to overcome math anxiety and cognitive overload. Comparative studies across different academic institutions or cultural contexts could offer valuable insights into how localized educational environments influence students' experiences with quantitative subjects. Research might also focus on the role of emotional intelligence and the extent to which faculty

training in student-centered teaching methods can contribute to improved learning outcomes in quantitative courses. By broadening the scope of research, educators and policymakers can better design initiatives that support diverse student needs and foster a more inclusive learning environment for future cohorts.

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