

Navigating the AI Revolution: Implications for Business Education and Pedagogy

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Abstract

Generative artificial intelligence (AI) is rapidly emerging as a transformative force across various sectors. As education shifts towards an AI-focused future, adapting teaching methodologies and evaluation strategies to this technological evolution becomes more and more important. This paper delves into the profound implications of generative AI on business education, critically analyzing its influence on broad program learning outcomes as well as on specific assessment tasks, ranging from quizzes to work-integrated learning projects. By examining and assessing responses from ChatGPT, we evaluate their structural coherence and the potential to enhance or replace key skills evaluated in students. Our findings primarily indicate that for formulaic quizzes and short essay questions, GPT-4 often delivers accurate solutions. In the context of research reports and reflection journals, GPT-4 serves more as a guide and scaffolding tool. As AI continues to advance, it becomes increasingly crucial for business educators to re-examine their learning objective frameworks. This includes utilizing the technology's potential while navigating its complexities, ensuring that education remains effective, relevant, and in step with the pace of innovation.

Keywords: ChatGPT, generative AI, business education, assessment design

1. Introduction

ChatGPT, a generative Artificial Intelligence (AI) that emerged in late 2022 as a pinnacle of technological innovation, is a large language model known for its exceptional ability to produce textual content. The core optimization stems from Reinforcement Learning with Human Feedback (RLHF), a process where the model's responses are refined and directed by human-guided demonstrations (OpenAI, 2023). Launched in November 2022, ChatGPT rapidly garnered attention, amassing 1 million subscribers in just five days (Altman, 2022). This technology has achieved breakthroughs in various domains, from story generation (Lucy & Bamman, 2021) to performing at the junior data analyst level with comparable efficacy (Cheng et al., 2023). In certain tasks, it even demonstrates the potential to outperform junior-level tasks, showcasing enhanced memory efficiency (Nascimento et al., 2023).

Such disruptive innovation poses substantial challenges to traditional educational pedagogies. The integration of AI-powered tools like ChatGPT into education calls for a comprehensive re-evaluation of prevailing teaching methods and assessment designs. As the role of ChatGPT in education continues to expand, this paper aims to explore its implications and potential in business education, as well as assess how effective ChatGPT-4 is in responding to assessment tasks.

2. Literature Review

The rapid evolution of ChatGPT has garnered significant attention in educational research. Lo (2023) developed a literature review centred on ChatGPT's educational contributions, offering systematic evaluations across disciplines such as mathematics (Frieder et al., 2023), economics (Geerling et al., 2023) and medical education (Gilson et al., 2023). These evaluations primarily compare ChatGPT's efficacy against conventional examination benchmarks.

From an assessment design perspective, Baidoo-Anu & Owusu Ansah (2023) discussed the potential benefits of weaving ChatGPT into pedagogy, emphasising its capabilities in personalised tutoring, automated essay marking and interactive learning experiences. While Chan & Tsi (2023) navigate the contentious debate on ChatGPT superseding

human educators, they acknowledge the irreplaceable emotional and relational aptitudes inherent to teaching. Dai et al. (2023) showcased ChatGPT's proficiency in delivering feedback, which is characterized by detail and coherence and often surpasses many human instructors in fluency and alignment with established grading criteria. Furthermore, with the right prompts, ChatGPT can provide both process-oriented and task-level feedback to students.

Within specific educational disciplines, scholars have examined both the strengths and potential roles of ChatGPT. Pavlik (2023) explored its potential and limitations within journalism and media education. In the context of science education, Cooper (2023) offers insights on the value of ChatGPT in reinforcing critical thinking skills during assessments. Nikolic et al. (2023) present a compelling comparative study, underscoring ChatGPT's value as both a scaffolding instrument and an idea generator in engineering education. They benchmarked traditional engineering assessments against ChatGPT, highlighting its capabilities in introductory programming classes as well as its role as an editorial guide, scaffolding tool and catalyst for idea generation.

Zooming in on business disciplines, studies on ChatGPT education have concentrated on specific areas: information systems (Van Slyke et al., 2023), entrepreneurship (Bell & Bell, 2023) and management (Ratten & Jones, 2023). It's important to highlight that many business subjects adopt an interdisciplinary teaching approach, weaving together a diverse spectrum of competencies and knowledge areas. Broadening this perspective, Dwivedi et al. (2023) venture into a multi-disciplinary examination of opportunities, challenges and implications that generative conversational AI poses for research, practice and policy.

While ChatGPT's implications across multiple disciplines have been widely studied, its role and potential impact within business education remain relatively underexplored. Business subjects, which often combine different fields of study, offer a unique setting to assess the transformative power of generative AI-driven tools like ChatGPT-4. This paper intends to bridge this gap, leveraging the Program Learning Outcomes (PLOs) of a Business School as an anchoring framework. We aim to explore how AI will reshape these PLOs by investigating associated assessment methodologies and providing an in-depth exploration of relevant case assignment studies.

3. Methods

The Business School has outlined the core knowledge and capabilities via seven PLOs (Table 1), which are consistently integrated throughout the coursework programs. The PLOs represent a blend of knowledge, skills, and capabilities that are taught, refined and assessed. Our research methodology involves reviewing each of the PLOs and assessing the extent to which ChatGPT-4 can offer guidance through case assignments and determining its scalability.

Table 1. Business School Program Learning Outcomes

PLO 1: Business knowledge
PLO 2: Problem solving
PLO 3: Business communication
PLO 4: Teamwork
PLO 5: Responsible business practice
PLO 6: Global and cultural competence
PLO 7: Leadership development

3.1 PLO1 on Business Knowledge

PLO1 states that students should “make informed and effective selections and apply knowledge in a discipline or profession, within the contexts of local and/or global business.” The central criteria for this PLO are to (a) identify/select and clarify relevant disciplinary or interdisciplinary knowledge, and (b) apply relevant disciplinary or interdisciplinary knowledge in local and/or global contexts.

In terms of assessment, PLO1 incorporates several pivotal components: discipline-specific knowledge, interdisciplinary knowledge, context, breadth, and depth of understanding. These elements are woven into various disciplines, courses, and evaluation techniques. When designing assessments, it's expected that students exhibit a deep understanding of business concepts. A range of evaluation methods, including traditional exams and quizzes, prove beneficial for assessing this PLO. For instance, quizzes and knowledge tests serve as effective tools to evaluate

concept retention and comprehension, primarily addressing Criteria (a). On the other hand, tasks such as written assignments typically focus on Criteria (b).

3.2 PLO2 on Problem Solving

PLO2 states that students should “define and address business problems, and propose effective evidence-based solutions, through the application of rigorous analysis and critical thinking.” The central criteria for this PLO are:

- (a) Identify a problem or issue, relevant questions, and the purpose of the task for critical analysis.
- (b) Apply rigorous analysis, incorporating appropriate frameworks, tools, and standards, to develop and/or evaluate data.
- (c) Formulate well-reasoned, fitting conclusions or solutions.
- (d) Showcase a capacity for independent critical inquiry.

This PLO underscores the importance of using authentic case studies to address real-world business and societal challenges. It promotes active pedagogies that evaluate problem-solving abilities and critical thinking skills. The type of analysis—whether qualitative, quantitative, or mathematical—often varies depending on the specific course or discipline. Through constructive feedback, students are encouraged to refine their critical thinking skills. Standard assessments, such as research written reports, help evaluate students’ independent learning capabilities.

3.3 PLO3 on Business Communication

PLO3 states that students are expected to “harness, manage, and communicate business information effectively using multiple forms of communication across different channels.” The central criteria for this PLO include:

- (a) Demonstrating proficiency in reading, writing, listening and speaking in English.
- (b) Gathering useful information via face-to-face, written, and/or digital mediums.
- (c) Combining information and communication skills to effectively address a specific audience and purpose.
- (d) Using language, visual representations, and/or digital media to effectively and accurately interpret and convey qualitative and quantitative information.

This PLO emphasises the importance of mastering a broad spectrum of communication skills. Both oral and written communication are essential competencies that are expected to be assessed.

3.4 PLO4 on Teamwork

PLO4 underscores the expectation for students to “interact and collaborate effectively with others to achieve a common business purpose or fulfil a common business project, and reflect critically on both the process and the outcomes.” The foundational criteria for this PLO are:

- (a) Demonstrating the ability to collaborate effectively with peers to achieve collective objectives, and
- (b) Engaging in reflective practices to evaluate one’s contributions, as well as those of fellow team members, within the collaborative framework.

The assessment paradigm primarily integrates group activities, complemented by a peer-review mechanism. An individual’s grade is determined by the quality of the collaborative work and the outcomes of peer evaluations. Assessment tools often include reflective journals and presentations (both written and oral), through which students offer recommendations for future team collaborations.

3.5 PLO5 on Responsible Business Practice

PLO5 states that students should “develop and commit to responsible business thinking and approaches that are anchored in ethical professional practice and sustainability considerations.” The primary criteria for this PLO include:

- (a) The ability to apply relevant ethical frameworks to business decisions and practices.
- (b) The capacity to evaluate business decisions and practices in the context of economic, social, and environmental sustainability.

The assessment of this objective is typically achieved by highlighting ethical professional practices and emphasizing concerns related to economic, social, and environmental sustainability. The goal is to use diverse assessment tasks to enhance student awareness. This strategy is designed to spotlight these crucial areas, motivating students to delve deeper into reflection and critical thinking about responsible business practices.

3.6 PLO6 on Global and Cultural Competence

PLO6 emphasises that students should “be aware of business systems in the wider world and actively committed to recognise and respect the cultural norms, beliefs and values of others, and apply this knowledge to interact, communicate and work effectively in diverse environments.” The central criteria for this PLO include:

- (a) Demonstrate awareness of the global business environment.
- (b) Demonstrate awareness of cultural environment and articulate cultural norms, beliefs and values.
- (c) Apply cultural and global competence to work effectively in a culturally diverse environment.
- (d) Analyse and evaluate business decisions/practices or propose a strategy in a culturally diverse context.

Assessments for PLO6 typically involve self-reflection on interactions within global business scenarios or multicultural team settings. The assessment design frequently integrates case studies and scenario analyses to facilitate deeper understanding and application. The overarching aim is to nurture cultural intelligence, fostering attitudes and interpersonal skills essential for effective interactions within diverse cultural contexts, whether in global business situations or multicultural environments.

3.7 PLO7 on Leadership Development

PLO7 emphasizes the students’ capability to “cultivate the ability to initiate actions, promote forward-thinking, and drive innovation, while effectively influencing others to achieve desired outcomes.” The essence of this PLO revolves around nurturing leadership qualities that not only focus on self-improvement but also on influencing collective progress. Central to this PLO are the criteria to:

- (a) Demonstrate capacity for self-leadership and learning from reflection on experience.
- (b) Generate, develop and/or evaluate innovative ideas and concepts.
- (c) Select and apply relevant leadership approaches and skills to influence others to innovate, change, and achieve desired results.

Assessments for PLO7 usually revolve around reflective activities. Written exercises prompting introspective evaluations of students’ performances and self-assessments are commonly utilised. Beyond retrospective evaluations, students are encouraged to engage in forward-thinking exercises, such as creating a professional development plan. Such proactive activities help prepare them to anticipate future challenges.

4. Results and Discussion

We further assessed ChatGPT-4’s capabilities across a variety of case assignments, including quizzes, short essay questions, individual research reports, and reflection journals. This diverse range of tasks was selected to comprehensively evaluate GPT-4’s performance.

4.1 Case Assignment 1 as Quiz Question

A company issues new 20-year \$1,000 bonds with a coupon rate of 6.2% payable semiannually at an issue price of \$1,030.34. Assuming a tax rate of 28%, the firm’s annual after-tax cost of debt (%) is closest to:

- A 5.94.
- B 4.28.
- C 4.46

GPT-4’s Solution:

“To determine the firm’s after-tax cost of debt, we first need to determine the before-tax yield to maturity (YTM) on the bond. Once we have the YTM, the after-tax cost of debt can be computed as:

$$\text{After-tax cost of debt} = YTM \times (1 - \text{Tax rate}) \quad (1)$$

Given:

Face value (FV) = \$1,000

Coupon rate = 6.2% (of the face value)

Coupon payment = $6.2/100 \times 1000$, payable semiannually = 62/2

Price (PV) = \$1,030.34

$n = 2$ times a year for 20 years = 40 periods

Tax rate = 28%

The yield to maturity (YTM) can be found by solving for the interest rate in the bond pricing formula:

$$PV = \frac{C}{(1 + YTM/2)} + \frac{C}{(1 + YTM/2)^2} + \dots + \frac{C}{(1 + YTM/2)^{40}} + \frac{FV}{(1 + YTM/2)^{40}} \quad (2)$$

Where:

C = Coupon payment

FV = Face value of the bond

Let's solve for the YTM.

The bond's yield to maturity (YTM) is approximately 5.94%.

Given the tax rate of 28%, the firm's annual after-tax cost of debt is approximately 4.28%.

Thus, the answer closest to the calculated after-tax cost of debt is: B: 4.28%."

GPT-4's efficiency in offering detailed quiz solutions underscores its utility as an educational tool. Incorporating GPT-4 in adaptive quiz platforms can provide students with real-time feedback, highlighting areas that may need further revision. This not only positions GPT-4 as a potential virtual tutor but also augments the conventional quiz experience.

4.2 Case Assignment 2 as Short-Essay Question

A defined benefit scheme, which remains open to new entrants and future accrual, has reflected in its recent accounts that the scheme's funding deficit has worsened since the last scheme valuation. What could be the plausible reasons for the observed change in the funding deficit presented in the accounts?

GPT-4's Solution:

"The deterioration of a defined benefit scheme's funding deficit implies that its liabilities have outpaced its assets since the last evaluation. Several reasons might account for this shift:

- Investment Returns: Underperformance of the scheme's investments against expected returns can cause slower asset growth, exacerbating the deficit.
- Mortality Assumptions: Updated life expectancy predictions can inflate the scheme's liabilities if participants are now expected to live longer.
- Discount Rate: A drop in this rate can surge the present value of future commitments, amplifying the deficit.
- Salary Increases: Unexpectedly large salary hikes can elevate projected benefits and, consequently, liabilities.
- New Entrants: An influx of new scheme members can swell future commitments.
- Benefit Alterations: Benefit enhancements without proportional contribution increases can burgeon liabilities.
- Reduced Contributions: Lower-than-expected contributions can decelerate asset growth.
- Actuarial Assumptions: Any shifts or inaccuracies here can influence liability calculations.
- Macroeconomic Dynamics: Elements like inflation, interest rates, and general economic health can sway both assets and liabilities.
- Operational Costs: Unanticipated operational and administrative expenses can deplete assets.
- Demographic Changes: An unforeseen surge in early retirements or benefit claims can elevate short-term commitments.
- Asset-Liability Mismatch: Interest rate fluctuations can disproportionately impact liability values if there's a mismatch in the scheme's asset and liability durations.

Understanding the specific reasons for the change in the funding deficit is crucial for trustees and sponsors to take corrective actions and ensure the long-term sustainability of the defined benefit scheme."

GPT-4 has adeptly explained factors such as investment return, mortality experience, salary increases, lower contributions and increased expenses. These reasons are relevant to the context of the pension scheme's funding deficit. However, while the points about actuarial assumptions and macroeconomic factors do highlight potential changes that can affect a scheme, they don't directly address the fund deficit's deterioration. Such specificity is essential in actuarial exams.

4.3 Case Assignment 3 as Research Report

You have been instructed by the Mortgage Stress Project Team leader to address three specific questions. To tackle these, you must employ various problem-solving toolboxes. Your submission should be a business report, not exceeding 1,500 words (excluding graphs, figures, and references), and it should incorporate the Harvard referencing style.

1. Information Toolbox (Approx. 500 words)

- Contextualize the mortgage stress issue using selected literature: Incorporate insights from two academic articles and two grey literature sources.
- Construct a logic tree to methodically break down the problem, pinpointing key factors.

2. Statistical Toolbox (Approx. 600 words)

- Examine a dataset derived from a recent Sydney mortgage stress survey.
- Offer a snapshot using visual aids and descriptive statistics, emphasizing the 'hcost' metric (ratio of mortgage repayment to household income).
- Probe into variable correlations, spotlighting data trends, especially the relationship between mortgage repayment percentages, household income, and age groups.
- Unearth and articulate any supplementary noteworthy findings from the data, ensuring they're contextually relevant.

3. Ethics Toolbox (Approx. 400 words)

- Select a stakeholder influenced by Sydney's housing affordability issues from the following: Banks/lenders, Borrowers, Assistance providers/agencies, or Developers.
- From your chosen stakeholder's viewpoint, pinpoint an ethical dilemma tied to mortgage stress.
- Employ ethical analysis to delve into potential detrimental outcomes, substantiating your rationale.

The sample dataset comprises 800 data entries and includes the following variables:

- lowinc: Indicator variable where 1 denotes the household is in the lowest two income quintiles, and 0 otherwise.
- lowSEIFA: Indicator variable where 1 denotes the property is in the lowest two SEIFA quintiles, and 0 otherwise.
- age: Represents the age of the household head, measured in years.
- comtime: Represents the normal weekly commuting time from the property to work, measured in hours.
- hcost: Calculated as the ratio of weekly mortgage repayments to weekly gross household income.

GPT-4's Solution:

“ ‘Information Toolbox’

Mortgage Stress Problem Framing:

Literature Insights:

- Academic papers and grey literature accentuate the multidimensional nature of mortgage stress. It's not only about the inability to repay loans but also the societal and psychological repercussions it entails.
- Research illustrates that economic downturns, unemployment spikes, and interest rate fluctuations significantly contribute to the problem.
- The housing market's dynamics, including supply constraints and speculative investments, have been highlighted as key drivers of escalating property prices, making mortgage affordability a salient issue.

Logic Tree Breakdown:

1. Mortgage Stress Causes:
 - Economic Factors: Interest rate hikes, inflation, economic recessions.
 - Personal Factors: Unemployment, health issues, unexpected expenses.
 - Market Dynamics: Property price surges, speculative investments.
2. Mortgage Stress Impacts:
 - Financial: Loan defaults, bankruptcy.
 - Societal: Homelessness, family disruptions.
 - Psychological: Stress, anxiety, depression.

Assumptions:

- The mortgage stress problem primarily affects those who have recently entered the property market or are on variable interest rate loans.
- Economic conditions remain relatively stable, with no drastic downturns forecasted in the near future.

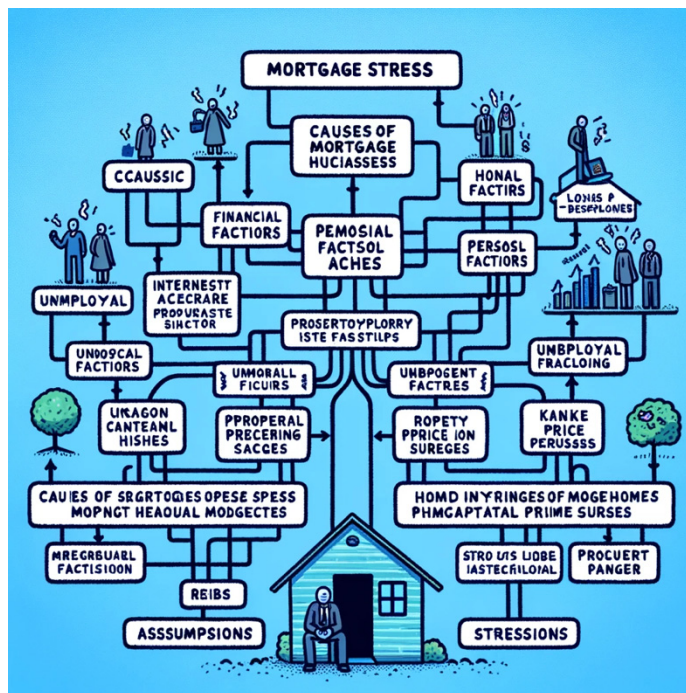


Figure 1. Logic Tree Diagram on Mortgage Stress

‘Statistical Toolbox’

Key Insights:

1. Low Income Households:
 - About 22% of the households fall under the lowest two income quintiles, which means a majority of households in the dataset have relatively higher incomes.
2. Socioeconomic Indicators:
 - Approximately 20% of the properties are located in areas falling within the lowest two SEIFA quintiles. This suggests a majority of the properties are situated in regions with better socioeconomic conditions.
3. Age Demographics:
 - The age of the household heads is primarily distributed between 25 to 85 years, with a mean age of approximately 49 years.

4. Commute Patterns:

- A significant proportion of households report zero commuting hours each week. This could be indicative of remote working trends, unemployment, or other factors.

5. Housing Cost Burden:

- The housing cost-income ratio, which signifies the burden of housing costs relative to income, has a mean of 0.137. A higher ratio indicates a more substantial proportion of income being spent on housing, making it a critical metric when assessing mortgage stress.

Correlations:

- Households in the lower income quintiles tend to have a higher housing cost relative to their income.
- Households in lower income quintiles are more likely to reside in areas with a low SEIFA score, indicating lower socioeconomic conditions.
- Older household heads generally have shorter commuting times, potentially due to proximity, remote work, or retirement.

‘Ethics Toolbox’

Stakeholder Selection: Borrowers (e.g., first-home buyers)

Ethical Dilemma: The surge in property prices and the consequent need for larger mortgages place first-home buyers in a precarious position. On one hand, they aspire for homeownership, a culturally and economically significant milestone. On the other, the potential for mortgage stress threatens their financial stability and well-being.

Moral Analysis:

1. Harm and Benefit Assessment:

- *Potential Harm:* Financial instability due to mortgage stress can lead to severe psychological distress, family disruptions, and in worst cases, homelessness.
- *Potential Benefits:* Homeownership offers a sense of security, potential capital appreciation, and societal recognition.

2. Rights and Duties:

- Borrowers have the right to clear and transparent information about their loans, potential risks, and market conditions.
- Lenders have a duty to ensure that borrowers are not taking on undue risks and are aware of the potential consequences of their mortgage decisions.

3. Fairness and Justice:

- It’s essential to ensure that first-home buyers are not disproportionately burdened or exploited. They should have equal opportunities to access resources, counseling, and support to make informed decisions.

Conclusion: While homeownership is a laudable goal, the potential ethical consequences of pushing first-home buyers into potentially stressful mortgages are profound. A balanced approach, emphasizing both the economic benefits and ethical considerations, is crucial.”

Upon evaluation of GPT-4’s capabilities, it’s clear that the system offers scaffolding for students in data analysis. GPT-4’s embedded data analysis tool is adept at processing data files, generating summary statistics for datasets, and producing visual representations of significant variable distributions. The histogram of a key variable (Figure 2) and the correlation heatmap (Figure 3) accurately reflect the housing cost burden and inherent trends in the provided dataset. Moreover, GPT-4 can identify correlations and patterns among variables, synthesizing these insights into a comprehensive academic analysis. However, the logic tree diagram (Figure 1) features scrambled letters, highlighting a weakness in efficiently supporting the creation of complex visual diagrams.

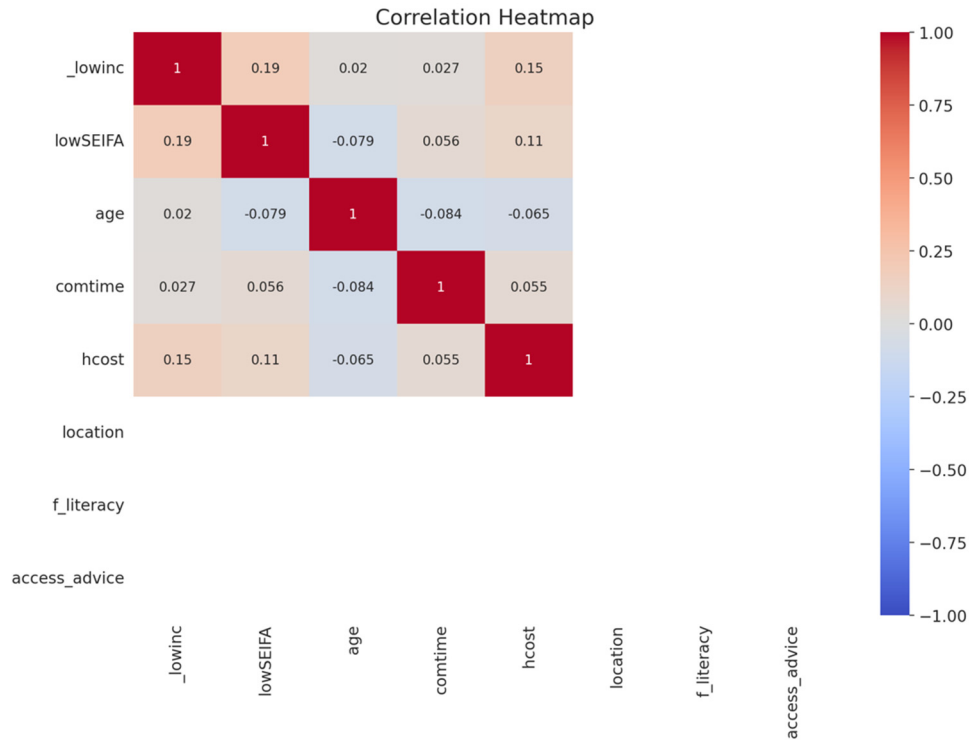


Figure 2. Summary of Variable Distribution

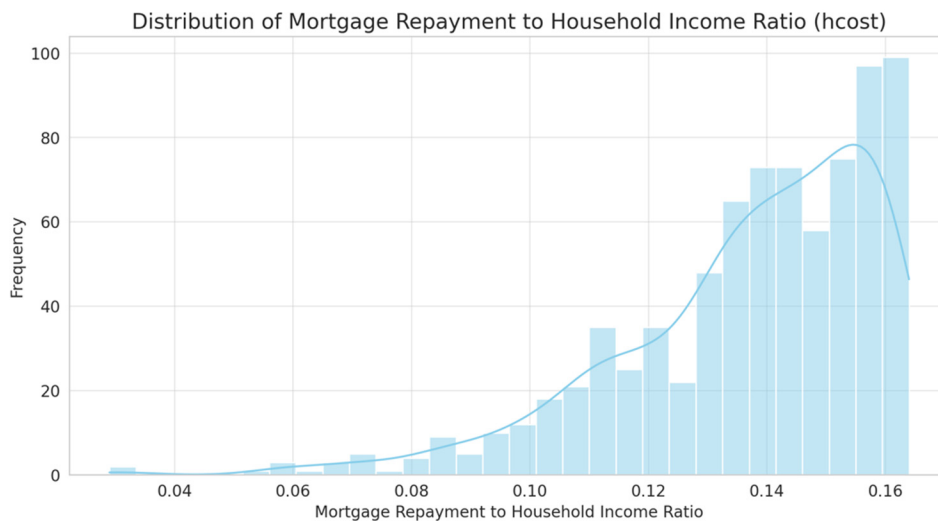


Figure 3. Correlation Heatmap of Variables

In the context of the ‘Information Toolbox’, certain limitations of GPT-4 become pronounced, primarily its lack of internet connectivity. This limitation restricts its ability to reference current academic literature and access external databases. Upon examining the capabilities of GPT-4 within the context of the ‘Ethics Toolbox,’ it is clear that the system successfully outlines potential ethical dilemmas across various scenarios. This provision offers students an initial framework upon which they can build deeper, more insightful explorations.

In terms of communication skills, GPT-4 excels as an effective proofreading tool. It is able to efficiently detect and correct grammatical errors, helping students in refining their written English. Additionally, GPT-4 provides constructive feedback on students’ compositions and offers linguistic guidance, and shares methods for effective data

visualisation techniques. Such capabilities suggest GPT-4's potential to meaningfully shape the evolution of program learning objectives, allowing students to capitalize on its analytical feedback.

4.4 Case Assignment 4 on Reflection Journal

In this assessment, you are required to undertake tasks centred on critical reflection to evaluate your learning journey throughout the course. Highlight both your contributions and those of others to the group task, your collaboration with peers, and the impact you had on your teammates. This segment requires you to recommend improvements for future team collaborations and to explore avenues for ongoing personal growth, particularly from your own cultural perspective.

GPT-4's Solution:

“Evaluating Learning Experience in the Current Course

1. Contributions to Group Task:
 - Specific roles or tasks you undertook.
 - Challenges faced and how you overcame them.
2. Collaboration with Peers:
 - Positive interactions and collaborations.
 - Instances where disagreements arose and how they were resolved.
3. Influence on Others:
 - Instances where you provided guidance or support to peers.
 - Feedback you received from group members.
4. Suggestions for Future Team Collaborations:
 - Areas of improvement in team dynamics.
 - Strategies for better communication or collaboration.
5. Continuous Development from a Cultural Perspective:
 - Insights into how your cultural background influenced your participation.
 - The importance of cultural intelligence in team dynamics.
 - Ways to enhance cultural understanding and collaboration in future projects.”

While GPT-4 can provide guidance and refine language structures, it's important to recognise its limitations, especially for personalised tasks like individual reflections. Without a deep understanding of a student's personal experiences, GPT-4's assistance has its bounds. While it offers a structured approach to aid students in their reflection process, the genuine essence of the reflection should come from the student's own experiences. Important learning goals, such as developing leadership skills and understanding global and cultural nuances, are best explored directly by students through their personal narratives. In this context, GPT-4 still serves as a valuable tool, helping to guide students' reflection efforts, encourage introspection and strengthen their analytical thinking.

For formulaic quizzes and straightforward essay questions, GPT-4 often provides accurate solutions. Leveraging ChatGPT for such tasks should be restricted, especially when aiming to test students' core disciplinary knowledge. However, the tool's ability to offer detailed explanations can be invaluable, serving as a supplementary tutor, particularly when used under the guidance of teaching staff. When it comes to individual research reports and reflection journals, GPT-4's strengths lie in scaffolding and proofreading. It can act as a beneficial guide, helping students start a project and igniting their analytical thinking. This approach is particularly aligned with the cognitive skill enhancement addressed in Essel et al. (2024) which noted that incorporating ChatGPT for in-class tasks effectively improved students' critical thinking skills.

5. Challenges and Limitations

Although GPT-4 can provide assistance and guide students' learning, overreliance on ChatGPT jeopardizes the development of students' independent problem-solving abilities. Rahm & Rahm-Skågeby (2023) view AI in education through the lens of imaginaries and problematizations, arguing that AI must always consider plausible futures and their societal effects to ensure it educates people 'in the right direction'. Overusing the technology may

potentially pose challenges for students in the future. Additionally, ethical concerns arise; drawing a clear line between what is considered original student contributions and the extent to which the tool is used for additional work remains a debatable subject within the education community, which attracts concerns about academic integrity and cheating (Currie, 2023). Furthermore, unequal access to the technology may disadvantage some students who have not used the technology (Adeshola & Adepoju, 2023).

While this study evaluates GPT-4's performance in assessing learning outcomes and assessment tasks within business education, a broader exploration is required to understand the similarities of quizzes and essay-based questions across other subjects, including interdisciplinary areas. We also recognize the necessity for future research to empirically investigate student engagement, considering ethical research practices and psychological factors. This study serves as an initial exploration of how GPT-4 impacts business education. As technology continues to advance, it is crucial that exploration in this area persists, adapting to the increasingly sophisticated developments in the field of technology.

6. Conclusion

As ChatGPT's capabilities continue to evolve, it is essential for educators to remain updated and design assessments that leverage the tool's strengths while fostering the essential skills students need in today's world. This paper outlines the requisite skills and capabilities for business school students, delves into each of the PLOs and examines four real-case assignment tasks. These assignments encompass quizzes, essay questions, research reports and reflection journals. We assess ChatGPT-4's responses and critically evaluate the strengths and limitations of its solutions. In the current pedagogical landscape, educators are advised to integrate ChatGPT into their instructional methodologies. The tool's promise lies in its potential for personalised tutoring, project scaffolding, and its unparalleled efficiency and accessibility. By reimagining the core objectives of learning outcomes and the essential skills students must acquire, this paper illuminates both the opportunities and challenges presented by this ground-breaking tool, guiding educators in their journey to optimize teaching and learning in the era of generative AI.

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