Elevating Accounting Skills with IMAGINE: A New Approach to Critical, Creative and Problem-solving Skills

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ABSTRACT

Integrated Case Study (ICS) is a compulsory subject offered to final-year undergraduates with a bachelor's degree in accountancy (BAC) (Hons). The teaching practice of the ICS subject generally provides cases and requires students to present their case findings based on previous knowledge and theoretical concepts. Thus, due to its nature, students reported that the subject matter was too complex to understand, especially in explicitly analysing and applying strategies to solve business cases effectively. Hence, an innovative teaching approach named IMAGINE is introduced to investigate how the approach can enhance students' creative, critical, and problem-solving skills. Data IS obtained through qualitative methods among accounting students who enrol in the ICS subjects. The research findings significantly enhance the pedagogical aspect of teaching the ICS subject via the IMAGINE approach. Therefore, they are essential for improving final-year BAC students' soft skills – critical, creative, and problem-solving.

Keywords: accounting, creative, critical, problem-solving, teaching

INTRODUCTION

The future job markets that graduates will encounter are becoming progressively intricate and uncertain with the 4IR (Tsiligiris & Bowyer, 2021; Bikar et al., 2023). There is a growing expectation for Higher Education Institutions (HEIs) to adopt a more comprehensive and unified approach that includes creativity, critical thinking, and problem-solving skills for students' effective learning (Kwarteng & Mensah, 2022; Kim & Choi, 2018). This study at Universiti Sultan Zainal Abidin (UniSZA), Terengganu, Malaysia, necessitates a substantial re-evaluation of how to facilitate accounting students in learning the Integrated Case Study (ICS). It is a theory-based subject, encompassing changes in content, learning materials, and techniques to nurture creative and critical problem-solving skills. Learning ICS is challenging since it is too complex to understand and requires critical, creative, and problem-solving skills to apply theories to solve real business practices. Notably, numerous researchers have observed a persistent gap between theory and practice in accounting education, and this disparity has been ongoing for some time, with indications that it is growing wider (Rajeevan, 2020).

Conventional accounting education often prioritises task completion, routine memorisation, and the provision of straightforward, descriptive answers (Turner & Baskerville, 2013). Maintaining the traditional teaching methods in a rapidly changing business environment may produce accountants who focus solely on numeric outcomes. In contrast, the contemporary business landscape demands strategic partners and critical thinkers (Rajeevan, 2020). Thus, focusing solely on theory-based accounting instruction can lead to students lacking a well-rounded understanding of accounting practice and having less experience in its social context

(Dellaportas, 2015). Moreover, it is challenging to nurture creative and critical problem-solving skills since there is insufficient exposure and limited opportunities for students to apply and develop these thinking skills within the classroom due to a limited worldview and the exam-oriented system (Fadhlullah & Ahmad, 2017).

On top of that, limited research has focused on what approach is suitable for students' teaching and learning that can provide the relevant skills such as creativity, critical thinking, and problem-solving skills for students' employability (Wolcott & Sargent, 2021). These skills are vital for professional market-ready graduates. Nevertheless, many educators face obstacles in equipping students with the skills to reflect the current accounting practices (Abdul Latif et al., 2019). Therefore, there is an urgency for a new teaching approach, particularly in ICS subjects offered to final-year accounting students who will continue their working lives journey very soon. Hence, this research proposes IMAGINE as an innovative teaching and learning approach for ICS subjects at UniSZA to develop future accounting graduates with critical thinking, creativity, and problem-solving skills. Thus, the research question is: how does IMAGINE enhance students' creative, critical, and problem-solving skills in the ICS subject?

To answer the main research questions, three objectives are outlined as follows:

1. To discover students' critical, creative, and problem-solving skills for business cases in the ICS subject.
2. To investigate the IMAGINE approach to enhancing students' critical, creative, and problem-solving skills for business cases in the ICS subject.
3. To evaluate the outcome of the IMAGINE approach on students' Course Learning Outcomes (CLOs) of the ICS subject.

LITERATURE REVIEW

Right skills for future graduates

Scholars have highlighted that creative thinking often fosters artistic expression without a primary focus on clarity, while critical thinking involves using cognitive skills to achieve specific, evidence-based goals (Resnick & Robinson, 2017; Robinson & Aronica, 2015; Halpern, 2014). Note that critical thinking goes beyond cognitive abilities, emphasising logic and reasoning (Mulnix & Mulnix, 2010; Paul & Elder, 2020), and is also associated with cognitive processes in decision-making and problem-solving (Ennis, 1987; Sternberg, 1986). This is particularly true in situations where problem-solving requires a critical thinking approach.

Nowadays, the issue of unemployment is linked to universities not producing graduates with the right skills for available jobs (Kwarteng & Mensah, 2022). This concern emerged approximately a decade ago in Malaysia when the Malaysian Institute of Accountants (MIA), a professional accounting organisation, highlighted the difficulties in aligning accounting graduates' skills with the job market's needs (Accountants Today, 2013). Although efforts have been made, such as providing guidance in the competency frameworks of professional accounting bodies for the skills expected of graduates in the workplace, there is not always a universally agreed-upon definition and practical act of critical thinking and its associated skills (Terblanche, 2023). The most challenging part for accounting students is that they are not solely tasked with the ability to perform calculations. However, they are also expected to engage in critical and creative thinking when addressing diverse accounting problems and challenges across various contexts (Alkurnia et al., 2019).

For example, ICS subject primarily integrates other accounting subjects, including theories, and is abstract-based. The subject is compulsory and offered to final-year bachelor's degree accountancy students in all public HEIs. With the subject nature, teaching is challenging and complex for students to understand, especially when it requires critical, creative, and problem-solving skills to solve business cases. These skills are crucial now since the accounting field is changing. Correspondingly, new accountants are expected to demonstrate better critical thinking skills from the start of their careers (Wolcott & Sargeant, 2021).

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Hence, it is significant to prepare future accounting graduates at university to possess all the qualities required by the industry, including critical, creative, and problem-solving skills. This aim is relevant to the needs of employers and professional groups that consistently ask for these crucial skills to be included in the courses and curriculum (Papageorgiou, 2023). This research introduces an IMAGINE approach to assist the targeted accounting students in experiencing a more meaningful learning process that may enhance creativity, critical thinking, and problem-solving skills when learning theoretical and abstract-based subjects.

IMAGINE approach

The IMAGINE approach is designed to assist in capturing the multiple views of real-world perceptions to present a situation, problem, or concept using visualisation (drawings) rather than words. Thus, additional information could be obtained (Mohd Fadhil, 2022; Burge, 2015) to solve business cases, specifically in ICS subject. IMAGINE is an approach taken from a concept known as the Rich Picture (RP) of Soft System Methodology (SSM) (Checkland, 1999). Previous research has proven that RP is a problem-structuring tool for investigating a problematic real-world situation in an engineering field (Checkland, 1999; Checkland & Scholes, 1990; Lewis, 1989). Here, the real world is perceived as messy. For example, problems are complex, unstructured, and ill-defined (Checkland, 2000), thus requiring a soft model such as RP (Ghosh et al., 2016; Checkland, 2000).

Transforming the traditional RP method into an innovative educational strategy called IMAGINE is poised to amplify students' comprehension, critical thinking, creativity, and problem-solving prowess when studying ICS through visual drawings. The IMAGINE approach underscores the development of these skills by its inherent flexibility and innate alignment with individual preferences, echoing the insight shared by Checkland (2000, p.22). It posits that learners must cultivate their proficiency in crafting pictures "in ways they are comfortable with, ways which are as natural as possible for them as individuals."

IMAGINE is an apt pedagogical approach for ICS subjects due to its pronounced emphasis on graphical representations, encompassing techniques like sketching, employing symbols, incorporating imagery, utilising icons, incorporating memos, and integrating many other graphic elements into the learning process. The IMAGINE approach, such as in its visual activities, enables flexible drawings with no rigid rules and constraints (Horan, 2000). In addition, IMAGINE's benefits include demonstrating an overview of a situation, relationships, and hierarchy and offering a platform for further discussion of a topic under study through drawings and graphic illustrations (Horan, 2000).

Thus, IMAGINE could be an innovative approach for problem identification, problem critical analysis, and creativity, impacting students' learning outcomes for ICS subjects.

METHODOLOGY

This research is conducted at the Faculty of Business and Management, UniSZA, Gong Badak Campus. The participants for this research are undergraduate accounting students who enrolled in the ACB41703 ICS course in Semester I 2023/2024. This research is conducted for one year.

The IMAGINE approach is used to achieve CLOs one, two, three, and four, which are CLO1: interpreting accounting and business problems in organisations, CLO2: analysing a case study of a local SME, CLO3: evaluating alternatives in solving business problems and proposing the best solution, and CLO4: create a sustainable strategy for small businesses. Based on Detailed Course Content (DCI), these four CLOs will be assessed throughout the semester. Thus, the lecturer introduced the IMAGINE approach in the first week of the study and used it for the semester.

The number of students enrolled in ICS subjects is around 120, divided into three groups. One group was selected during the semester, with 45 students participating in the research. We used the IMAGINE module to support one group's teaching and learning process this semester. The traditional teaching methods without the

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IMAGINE approach will be conducted in two other groups. Therefore, by investigating students' use of IMAGINE and analysing students' reflections, we can draw several conclusions about the use of IMAGINE in ICS subjects.

The data collection will be qualitative to answer the research questions of what and how by employing fully qualitative surveys (Braun et al., 2020) and interviews (Yin, 2014). During the weeks of study, a qualitative survey took place in the class to get an overview of and responses to how the IMAGINE module is used. Qualitative surveys consist of a series of open-ended questions crafted by a researcher and centred on a particular topic for this research (Braun et al., 2020). When participants provide their responses by typing in their own words instead of choosing predefined options, fully qualitative surveys can yield in-depth and intricate insights. This technique aligns with the type of sense-making that typically engages qualitative researchers, encompassing participants' subjective experiences, narratives, practices, positions, and discourses (Braun & Clarke, 2013). One of the main strengths of qualitative surveys for this research is that they are the best fit when the focus of the topic is specific. It can provide the potential to capture a diversity of perspectives, experiences, or sense-making (Braun et al., 2017).

RESEARCH FINDINGS

The research findings section is written in three parts, thus addressing the three research objectives.

Students' level of critical, creative, and problem-solving skills in learning the Integrated Case Study (ICS) subject

The data demonstrates a significant improvement in students' skill levels in critical thinking, creative thinking, and problem-solving after implementing the IMAGINE approach (see Table 1). According to the chart, during Semester 1 2023/2024, the number of students are 45.

Table 1: The number of students and their skills level of critical, creative, and problem-solving skills before and after applying IMAGINE.

	Skills					
	Critical thinking		Creative thinking		Problem-solving	
Skills level	Before	After	Before	After	Before	After
Very low	1	0	3	0	0	0
Low	11	1	12	0	15	0
Medium	32	6	24	3	24	4
High	0	30	6	33	5	28
Very high	1	8	0	9	1	13
Number of students	45	45	45	45	45	45

For **critical thinking**, the number of students at the "high" level increased from 0 to 30, and those at the "very high" level rose from 1 to 8, with corresponding decreases in lower levels. In **creative thinking**, students at the "high" level increased from 6 to 33, while those at "very high" went from 0 to 9, demonstrating a shift from "low" and "medium" levels to higher competencies. **Problem-solving** skills also saw a notable rise, with "high" level students jumping from 5 to 28 and "very high" from 1 to 13, accompanied by significant reductions at lower levels. Overall, the IMAGINE approach effectively elevated most students from lower to higher skill levels across all categories. The findings address the research objective, which is to discover students' level of critical, creative, and problem-solving skills for business cases in the ICS subject.

Utilising the IMAGINE approach to enhance students' critical, creative, and problem-solving skills in ICS subject

The IMAGINE approach has been reported to positively influence students' learning, particularly in developing their critical, creative, and problem-solving skills within the ICS subject. One of the students commented on IMAGINE,

“This visual approach sparks creativity and simplifies the information. IMAGINE helps me find smart solutions to the tasks given in the subject. It helps me be creative and think outside the box to solve any issues.”

Before implementing IMAGINE, students commonly felt they lacked balance among these skills, with self-assessments indicating a range of approximately 30-50% in skill balance. However, after engaging with IMAGINE, most feedback reveals a significant enhancement in students' experiences with these competencies. For example, students have notably reported improvements in their creative thinking skills, with many expressing a profound increase in their ability to analyse, evaluate, and innovate within case study scenarios. Student 11 commented,

“Visualising concepts through drawing can help break the theory into smaller, more manageable parts and make them easier to understand and analyse. This can lead to new ways of looking at problems and solutions for the business case.”

Additionally, much feedback indicates a marked improvement in critical thinking skills, with students describing how IMAGINE has enabled them to think more critically about opportunities and alternatives in problem-solving contexts. Student 1 commented,

"IMAGINE enhances creative thinking, enabling me to analyse and evaluate information critically."

At the same time, Student 6 noted,

"Using IMAGINE improves my ability to find innovative solutions and generate unique ideas for case problems."

These comments illustrate a shift from their initial perceptions of low creative thinking skills to a heightened sense of capability. Similarly, students have reported enhanced problem-solving skills, noting improvements in collaborative problem-solving and the ability to incorporate diverse perspectives. Student 7 noted:

“Drawing can also enhance communication and collaboration among team members. Sketches, diagrams, and illustrations are effective tools for quickly conveying complex ideas and solutions compared to lengthy explanations. Thus, team members can communicate complex ideas quickly and efficiently to each other. Rapid communication addresses unexpected challenges that demand swift adaptation and teamwork.”

Overall, the qualitative insights suggest that IMAGINE has significantly contributed to a more balanced development of creative, critical, and problem-solving skills. Students have emphasised that these improvements are valuable for their future employment prospects, highlighting the approach's effectiveness in enriching their educational experience. Hence, the findings addressed the second objective, which is to investigate the IMAGINE approach to enhancing students' critical, creative, and problem-solving skills for business cases in the ICS subject.

Outcome of the IMAGINE approach on students' course learning outcomes (CLO) for the Integrated Case Study (ICS) subject

IMAGINE is believed to be transformative teaching since after applying the teaching method in the new semester, the CLO for the subject teaching exhibits an increment for students who achieve 50 over 100 marks and above (pass) the subject from Semester 1, 2022/2023 to Semester 1, 2023/2024 (see Table 2).

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Table 2: Comparison chart for the two semesters based on each CLO achievement for students who achieve 50 marks and above (pass).

Course Learning Outcome (CLO)	Semester 1, 2022/2023 (before IMAGINE is introduced)	Semester 1, 2023/2024 (after IMAGINE is introduced)
CLO1: Interpret accounting and business problems in organisations	100% students obtained 50% marks and above	100% students obtained 50% marks and above
CLO2: Analysing a case study of a local Small Medium Enterprise (SMEs)	100% students obtained 50% marks and above	100% students obtained 50% marks and above
CLO3: Evaluate alternatives in solving business problems and propose the best solutions	53% students obtained 50% marks and above	93% students obtained 50% marks and above
CLO4: Create a sustainable strategy for small businesses using the Blue Ocean strategy	81% students obtained 50% marks and above	86% students obtained 50% marks and above

The introduction of the IMAGINE approach in Semester 1 of 2023/2024 led to noticeable improvements in students' performance (referring to students who obtained 50% marks and above), particularly in their ability to evaluate alternatives and propose solutions (CLO3), where achievement increased significantly from 53% to 93%. This suggests that the IMAGINE approach effectively enhanced students' critical and creative thinking skills, allowing them to better tackle complex business problems.

While the performance in interpreting accounting problems (CLO1) and analysing case studies (CLO2) remained consistently high at 100%, indicating stable and effective teaching methods, the results for creating sustainable strategies (CLO4) demonstrated a modest improvement from 81% to 86%. Overall, these outcomes demonstrate that the IMAGINE approach positively impacted students' higher-order thinking and problem-solving abilities, with room for further refinement to fully support strategy development skills. Hence, the findings addressed research objective three, which is to evaluate the outcome of the IMAGINE approach on students' CLOs of the ICS subject.

The findings strongly suggest that the IMAGINE approach is a valuable pedagogical tool that can significantly improve students' skill development. Therefore, fostering a more balanced, innovative, and critical mindset prepares students to meet the demands of complex and dynamic environments. Future studies could further investigate the specific mechanisms of the IMAGINE approach that contribute most to these gains and explore its long-term impact on students' academic and professional trajectories. Additionally, examining the scalability and adaptability of the IMAGINE approach across diverse educational settings could provide further insights into its broader applicability and effectiveness.

DISCUSSION

The research findings highlight the substantial impact of the IMAGINE approach on enhancing students' critical thinking, creative thinking, and problem-solving skills. The comparative data before and after implementing the IMAGINE approach reveals a marked improvement in students' existing skills (Table 1) and their current performance levels after using IMAGINE, suggesting that this approach significantly contributes to skill development in educational settings.

Prior to using the IMAGINE approach, students mentioned that they have low levels of effectiveness and balance of their skills, rating themselves with skills ranging from 30% to 50% across various elements. However, after implementing the IMAGINE approach, these percentages dramatically increased, with most students agreeing that their skills were successfully enhanced. This suggests that the IMAGINE approach not only enhances specific cognitive skills but also boosts students' confidence in the relevance and applicability of these skills to their overall development.

Further supporting these findings, Table 1 reveals a significant shift in students' skill levels distribution across critical thinking, creative thinking, and problem-solving. Prior to using the IMAGINE approach, most students were concentrated in the "low" and "medium" categories, with very few reaching the "high" or "very high" levels. For instance, in critical thinking, 43 out of 45 students were at or below the "medium" level. However, after the introduction of the IMAGINE approach, there was a notable increase in the number of students at the "high" and "very high" levels, with 30 students reaching the "high" level in critical thinking and 8 achieving the "very high" level. Similar trends were observed in creative thinking and problem-solving, where the number of students at the "high" and "very high" levels significantly increased while those at lower levels decreased.

These results indicate that the IMAGINE approach effectively transitions students from lower to higher competency levels across all assessed skills. The consistent improvement across critical thinking, creative thinking, and problem-solving underscores the comprehensive nature of the IMAGINE approach in fostering essential skills critical for academic success and real-world problem-solving. Notably, the approach appears to enhance students' abilities to analyse and generate ideas and empower them to apply these skills collaboratively and innovatively.

Furthermore, the comparison of CLO pre and post-introducing the IMAGINE approach reveals a positive impact on students' abilities, particularly in critical and creative thinking (refer to Table 2). The most significant improvement was observed in CLO3, where the achievement rate increased from 53% to 93%. This highlights the effectiveness of the IMAGINE approach in helping students evaluate alternatives and propose the best solutions for business problems, highlighting its strength in fostering greater analytical and evaluative skills. Consistent performance in CLO1 and CLO2, with 100% achievement, suggests that foundational skills were already well-supported, and the IMAGINE approach helped maintain these high standards.

However, the moderate improvement in CLO4, from 81% to 86%, indicates that while the approach had a positive impact, there may be further opportunities to enhance learning strategies for developing sustainable business strategies. The findings suggest that innovative teaching methods, like the IMAGINE approach, can significantly boost students' higher-order thinking skills and problem-solving abilities. However, continuous refinement and targeted support could yield even better results, particularly in strategy development. Overall, introducing the IMAGINE approach has proven beneficial and sets a promising foundation for further educational advancements.

CONCLUSIONS

The IMAGINE approach has proven to be a highly effective educational strategy, significantly enhancing students' critical and creative thinking skills. This teaching approach suits the character and learning style of Generation Z students, who are discovered to have grown up alongside significant technological advancements. Thus, most have unpredicted attention spans and unexpected attitudes that may affect class management (Peredy et al., 2024; Blocksidge & Primeau, 2023). Therefore, encouraging deeper engagement and more active problem-solving through graphical illustrations to solve business cases has helped students shift from lower to higher skill levels across various learning outcomes. This demonstrates its potential to better prepare students for complex, real-world challenges by equipping them with essential analytical and evaluative skills.

However, while the IMAGINE approach has revealed strong results in boosting critical thinking and problem-solving, there is still room for further refinement, particularly in areas that require strategic thinking and application. This suggests the need for continuous improvement and adaptation of the approach to maximise its impact across all learning domains. Overall, the IMAGINE approach has positively contributed to student learning, offering a promising framework for fostering essential skills in diverse educational settings. IMAGINE: (1) can act as a transformative teaching approach for universities to align their accounting curricula with the developments of soft skills in professional body syllabi; (2) helps university accounting education

lecturers to enrich their teaching and learning approach to the requirements of the 4IR; and (3) improves how universities align and streamline skills and qualities targeted by employability programs at university.

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