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Conceptualising Educational Experience towards STREAMS Skills Attainment among MBA Students

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Abstract

Achieving the 17-Sustainable Development Goals, specifically the fourth goal emphasising quality education, encounters obstacles in adequately preparing graduates for the workforce. A critical approach to this challenge is STREAM education, integrating 21st-century skills essential for workforce readiness. While virtual learning, predominant in Malaysia, offers access to high-quality education, it raises concerns about skills development for professional success. Students engaged in virtual learning face difficulties in mastering technical skills and soft skills due to a lack of engagement, inclusivity, and interaction. Blended learning, despite incorporating physical classes, restricts interaction and engagement, hindering the development of vital skills. This issue extends to postgraduate students, underscoring the urgent need for attention from educators and policymakers. Without effective intervention, Malaysia's higher education system may struggle to produce skilled talent, increasing dependence on foreign workers and undermining the country's SDG targets and development goals. Moreover, it jeopardises Malaysia's ability to achieve the SDG by 2030 and hampers its aspiration to become a developed nation. Therefore, this research aims to examine STREAM skills attainment through an inclusive educational experience. The researchers adopt the Communities of Inquiry (CoI) theory, emphasising social presence, teaching presence, and cognitive presence as elements of educational experience. Anticipated outcomes include differences in STREAM skills attainment and educational experience between online and hybrid mode MBA students, as well as a significant relationship between educational experience and STREAM skills attainment. The expected contribution from this research is to highlight the challenges in virtual and blended learning environments that could possibly thwart holistic development of the MBA students. Findings aim to provide insights for educators and the Ministry of Education on improving learning methods and employment readiness.

Keywords: Blended Learning, Educational Experience, MBA, Online Learning, STREAM skills.

Introduction

In today's rapidly evolving global economy, the ability of higher education institutions to equip graduates with 21st-century skills has become a defining factor in national competitiveness and workforce readiness. This is particularly pertinent in light of Sustainable Development Goal 4 (SDG 4), which underscores the importance of inclusive, equitable, and quality education to promote lifelong learning and sustainable economic development (Goal 4, n.d.). A notable educational model gaining the attention to meet this objective is STREAM education, which extends the traditional STEM framework by incorporating reading, writing and arts to foster creativity, critical thinking, collaboration, and communication skills that are essential for today's dynamic workplace (Ho et al., 2021).

Despite Malaysia's initiatives to reform its higher education sector and embrace digitalisation through virtual and blended learning platforms (Mohammad et al., 2023), concerns persist regarding whether such manner are effectively nurturing STREAM competencies among students, particularly at the postgraduate level. Evidence suggests that students in online or hybrid programs often face barriers such as lack of interaction, minimal engagement, and weak inclusivity factors that limit both technical and soft skill development (Rathinam et al., 2023; Khoirunnisa et al., 2023). This is especially problematic for MBA students, who are expected to be future leaders and entrepreneurs, yet often lack adequate exposure to real-world skill-building environments (Alam et al., 2022). Malaysian educational institutions have historically emphasized traditional classroom instruction over technology integration, with research indicating that educators often lack sufficient understanding of how to effectively utilize computer-based information technology in educational contexts (Malik and Derioh, 2023). Hence, classroom practices remained outdated and instructor-centered, fostering a culture of student dependence as a sign of respect and appreciation for the instructor's role (Nair and Nesamany,2021). This pedagogical foundation may have created significant implementation challenges when STREAM skills attainment emphasizes creativity, collaboration, and communication in learning thus making it difficult to produce graduates who could compete globally, grow sustainably, and meet future economic and technological demands.

Problem Statement and Literature Review

Problem Statement

The fourth goal in the 17-Sustainable Development Goals (SDGs), focuses on enhancing the quality of education, aiming to equip adults with the necessary skills for employment, ensuring graduates are prepared for the workforce. One approach to achieving this goal is through the promotion of STREAM education, which emphasises the 21st-century skills such as collaboration, communication, creativity, and critical thinking (Stauffer, 2022). The attainment of these skills through effective educational experience are important for producing graduates who are ready for both the workforce (Fletcher & Tan, 2021; Ho et al., 2021) and the professional world (Sharma, 2023).

With the widespread use of the internet and technology, virtual learning (including online and blended learning) has become increasingly important in education, particularly in Malaysia (Mohammad et al., 2023). Virtual learning offers access to high-quality content, improves the

quality of teaching and learning, reduces delivery costs, and allows Malaysian expertise to be shared globally (Mohammad et al., 2023). Nevertheless, the implementation of academic programs in virtual settings has raised concerns about skills development (International Labour Organization, 2021) and this concern extends to blended learning too (Mohammad et al., 2023).

A common issue arising from virtual learning in relation to skills development is students' difficulty in learning and mastering hard skills, such as technical skills, software proficiency, and application-based skills, which are essential in the professional sector hence require immediate attention (Rathinam et al., 2023; Sharma, 2023). Furthermore, a deficiency in technical skills is a significant concern, as these skills are integral to the development of STREAM skills, ensuring individuals are prepared for future employment opportunities. (Hadiyanto et al., 2023).

Studies have indicated that besides struggling with mastering hard skills, students in virtual learning environments face challenges in developing soft skills such as communication, teamwork, problem-solving, adaptability, and leadership (Mohammad et al., 2023). These challenges arise due to the absence of engagement, inclusivity, interaction, a sense of belonging, and insufficiently supportive learning environment (Mohammad et al., 2023), which further compounded with technical issues like poor internet connectivity and outdated software (Al-Fraihat et al., 2019).

There is also an opinion stating that students' inability to master technical skills and soft skills cause by the unsatisfactory educational experience provided by virtual learning (Buhl-Wiggers et al., 2023). Although students in blended learning still have the opportunity to experience physical classes, they find their time for physical classes limited and sometimes incompatible with their work schedules, as many of them are working professionals (Khoirunnisa et al., 2023). Moreover, the limited time for physical classes also contributes to students' lack of familiarity with their lecturers and classmates, leading to a lack of interaction and engagement (Khoirunnisa et al., 2023), which in turn underdeveloped their STREAM skills like teamwork or collaboration, leadership skills, as well as social skills.

Issues related to virtual learning (online and blended) deserve attention in the research community because they affect not only the undergraduate students but also the postgraduate students (Chan et al., 2022). This indirectly serves as a wake-up call to educators, policymakers, and the Ministry of Education to take these issues seriously. According to Alam et al. (2022), postgraduate students, such as MBA students, are individuals with the potential to become entrepreneurs and intrapreneurs, forming the backbone of the country's economy. Therefore, it is essential for them to acquire STREAM skills, which include both hard and soft skills, through a comprehensive and fulfilling educational experience because there is no denying that these skills are relevant and highly beneficial for individuals aspiring to be entrepreneurs (Alam et al., 2022).

If this issue persists and remains unaddressed, it will hinder the progress of the higher education sector in Malaysia. Additionally, it will lead to Malaysia lacking competent future talents, relying heavily on foreign workforce, especially in professional fields. Moreover, it will

impede Malaysia's efforts to achieve the Malaysian SDG by 2030 and hinder its aspiration to become a developed nation.

All the underscored issues have motivated the researchers to conduct this research focusing on STREAM skills attainment via an inclusive educational experience. This research is proposed to examine STREAM skills attainment via educational experience that entails of social presence, teaching presence, and cognitive presence. The aim is to elicit effective learning environment or setting to assist the affected students (online and blended) in mastering STREAM skills by examining the relationship between educational experience and STREAM skills attainment. The researchers also anticipated that this proposed research could assist educators in enhancing and strategising their teaching methodologies by examining the extent of educational experiences encountered by MBA students in achieving STREAM skills.

Based on the discussed issues, the main objectives of this research are:

1. To examine the significant difference between STREAM skills attainment between online mode and hybrid mode MBA students.
2. To examine the significant difference between educational experience between online mode and hybrid mode MBA students.
3. To examine the significant relationship between Educational Experience and STREAM skills attainment among MBA students.
4. To investigate the extent of Educational Experience in STREAM skills attainment among MBA students.

Literature Review

Overview of STREAM Skills

The introduction of STREAM in the Malaysian education system aims to develop critical thinking, problem-solving, collaboration skills, communication, creativity and not limited to soft skills among students (Ho et al., 2021). Many have opined that the highlighted STREAM skills are aligned with the 21st century skills that is mostly sought by employers from various industries (Alam et al., 2022; Hadiyanto et al., 2023). Stauffer (2022) therefore purported the STREAM skills must include the 21st century skills namely, learning skills; literacy skills; and life skills as depict in Figure 1.

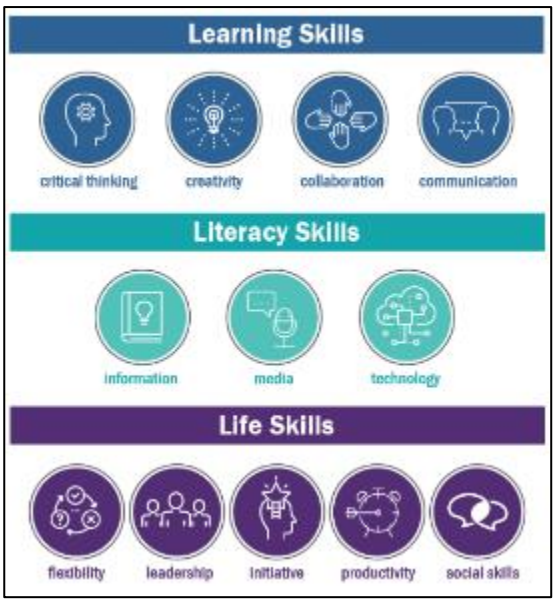

Figure 1 – 21st Century Skills
Source: Stauffer (2022)

Employers from various industries are reported to be in favour of universities' graduates who have undergone STREAM education and possessed STREAM skills (Ali et al., 2021). The rationale is because, STREAM education fosters students' higher order thinking abilities which indirectly developed and improved their capabilities in solving complex problem, being creative as well as innovative. Graduates with STREAM skills are also deemed to master not just the hard skills but the soft skills too making them good in team-work, collaboration and possessed cross-cultural social skills to effectively communicate with people irrespective background and nationality (Karaca-Atik et al., 2023).

Sadly, despite the rapid development of STREAM education in Malaysia (Ho et al., 2021), the issue of low attainment of STREAM skills among Malaysian university graduates remains prevalent hence requires urgent attention (Suyansah et al., 2023). This issue is particularly discussed within the context of graduates in management-related fields. Reports indicate that approximately 68% of positions in management-related fields remain unfilled due to current students lacking the necessary STREAM skills, thereby impacting their employment prospects (Ali et al., 2021). Moreover, Sahoo et al. (2022) provided empirical evidence showing that non-science graduates in Malaysia received less employability impression as compared to science graduates. Graduates in management-related fields are criticised for their shortcoming in cognitive aspects, particularly in problem-solving, creativity, and critical thinking. This criticism indirectly conveys that the majority of Malaysian graduates still lag behind in acquiring STREAM skills or 21st-century skills.

The issue concerning low employment prospects among graduates in management-related fields due to not mastering STREAM skills not only affects undergraduate students but also extends to postgraduate students (Alam et al., 2022). This situation is worsened as virtual learning has become the new norm for many higher education institutions since the Covid-19 outbreak (Samara et al., 2023). While virtual learning offers conveniences and is more cost-effective, the recurring concern revolves around its effectiveness in ensuring students receive

meaningful learning experiences while enabling them to master STREAM skills (Samara et al., 2023).

One of the frequently highlighted issues is that online learning fails to provide an enjoyable learning environment, leading students to often feel isolated, disengaged, and consequently lose focus and motivation (Mohammad et al., 2023). Additionally, students perceive virtual learning as dull because lecturers have limited interaction with them and provide fewer opportunities for collaborative discussions. This situation indirectly creates a gloomy and highly ineffective classroom atmosphere, especially among postgraduate students such as those pursuing an MBA, where the majority are working adult (Alam et al., 2022). Working adult learners tend to be more inclined to share their real workplace opinions and experiences to apply the theories learned in class (Alam et al., 2022), thereby stimulating critical thinking and aiding in the improvement of their communication skills, which are integral components of STREAM skills (Stauffer, 2022).

The same situation also applies to students in blended learning programs. Although they have the opportunity to meet or experience physical classes, the lack of encouragement for participation in online classes causes them to feel awkward among their classmates (Chan et al., 2022). Additionally, the limited time allocated for physical classes, coupled with work demands, often prevents them from attending physical classes, subsequently not addressing the estranged feeling among themselves (Rathinam et al., 2023). The lack of participation or human interaction in online classes has become one of the factors hindering students' improvement in communication, leadership, teamwork, and collaboration skills, which are evidently essential elements of STREAM skills (Stauffer, 2022).

One of the other issues discussed is the concerning the virtual class (online and blended) learning materials that are not sufficiently engaging and ultimately fail to maintain students' focus in class (Mohammad et al., 2023). This matter is particularly significant for students in management-related courses, where the content discussed in class often takes the form of theoretical concepts. Therefore, there is an opinion stating that it is crucial for lecturers to become more creative and fully utilise current or advanced technology to ensure the learning materials are engaging and not dull (Chan et al., 2022). This approach not only ensures the classroom environment is encouraging but also helps students and lecturers improve their literacy skills (i.e., information and technology savvy) (Stauffer, 2022).

Based on the discussed issues, students' lack of engagement and focus due to uninteresting classroom environments, and their feeling of exclusion from sharing ideas and opinions, which ultimately hinders their mastery of STREAM skills, have emerged as primary motivations for the researchers to conduct this study. Additionally, there are several recommendations suggesting that research on STREAM skills to be undertaken (Hadiyanto et al., 2023; Ho et al., 2021; Md Nawi et al., 2021) to address the literature gaps. This is because recent studies on virtual learning (online and blended learning) have predominantly taken the form of meta-analyses (Buhl-Wiggers et al., 2023; Chan et al., 2022; Rathinam et al., 2023). Furthermore, research specifically addressing issues related to virtual learning, specifically blended learning among postgraduate students remains insufficient (Chan et al., 2022; Haftador et al., 2023).

Furthermore, Mohammad et al. (2023) have recently suggested that future researchers should consider research involving virtual learning students to obtain their perspectives on the level of virtual learning effectiveness that involve respondents from universities other than UiTM. Besides that, there are inconsistencies in findings where some indicate that, unlike online learning, blended learning is effective and beneficial for improving graduate students' achievement and skills attainment (Malonisio, 2023). Nevertheless, findings from Malonisio, (2023) was challenged since Haftador et al. (2023) and Khoirunnisa et al. (2023) research findings confirmed that both blended and online learning often raise similar issues concerning classroom ineffectiveness. The inconsistency in results has become another literature gap to justify the researchers' interest in doing this research.

The researchers are also encouraged to investigate this topic because the issues raised not only affecting the undergraduate students but also postgraduate students in the management field. This issue aligns with the recommendations by Samara et al. (2023) and Sharma (2023), who have suggested that studies on virtual learning involving master's or PhD students are highly encouraged. Moreover, they also propose future researchers to consider conducting research to identify factors influencing the effectiveness of virtual learning. Therefore, based on the aforementioned issues, i.e., students do not feel engaged and inability to remain focus due to monotonous classroom environments, which consequently impeding students to master STREAM skills, providing insight for the researchers to investigate the relationship between educational experiences and STREAM skills attainment.

Educational Experience and STREAM Skills Attainment

The effectiveness of virtual learning is largely dependent on the competence of the lecturers in navigating the class (Al-Fraihat et al., 2019). From a management perspective, the lecturers must be proficient in using technology to deliver their courses effectively. This includes familiarity with online teaching tools, such as learning management systems, web conferencing platforms, and virtual collaboration tools. They should also be able to navigate the technical challenges that arise in the online classroom, such as troubleshooting technical issues and ensuring that students have access to reliable internet connections (Al-Fraihat et al., 2019).

Besides, the design of online activities is crucial to the success of online MBA programs. Lecturers must be able to create engaging and interactive activities that stimulate critical thinking and promote active learning. This requires a deep understanding of online teaching methodologies, such as gamification, and problem-based learning, as well as the ability to adapt these methodologies to suit the needs of the students (Cheng et al., 2023). On top of that, the facilitation of online discussions is critical to ensuring student engagement and learning. Therefore, lecturers must possess strong communication skills to moderate online discussions effectively, promote constructive dialogue, and facilitate group collaboration. They should also be able to provide timely feedback to students and adapt their teaching style to suit the needs of the online classroom (Cheng et al., 2023).

According to the highlighted elements to ensure effective virtual learning (online and blended) the researchers is proposing educational experience that entails three interdependent elements namely, social presence; cognitive presence; and teaching presence. The educational experience basically refers to the overall learning encounters and

opportunities that students undergo during their educational journey (Garrison et al., 1999). It plays a crucial role in shaping individuals' cognitive, social, emotional, and professional development (i.e., leadership, information, and technology), and the presence of educational experience is purported to be critical in achieving effective online learning (Garrison et al., 1999). The element of cognitive, social, emotional, and professional development that can be achieved by students through educational experience goes hand-in-hand to the elements entail in STREAM skills. This indirectly rationalise the researchers' decision in adopting it as the independent variable in the proposed research framework as depict in Figure 2.

Proposed Research Framework and Underpinning Theory

Figure 1 illustrates the research framework proposed for this study, which is based on the Communities of Inquiry (COI) theory developed by Garrison, Anderson, and Archer in 1999. COI theory offers a valuable framework for comprehending and promoting meaningful online learning experiences (Garrison et al., 1999). Additionally, Garrison et al. (1999) highlighted the educational experience stemmed from social presence, teaching presence, and cognitive presence is nurtured through the existence of engagement, interaction, and critical thinking elements in the online classroom which subsequently led to effective online learning. This notion is further supported by prior research from Cheawjindakarn et al. (2012), which underscores the significance of engagement, interaction, and critical thinking as key factors contributing to favourable and enriched learning outcomes, particularly in higher education settings.

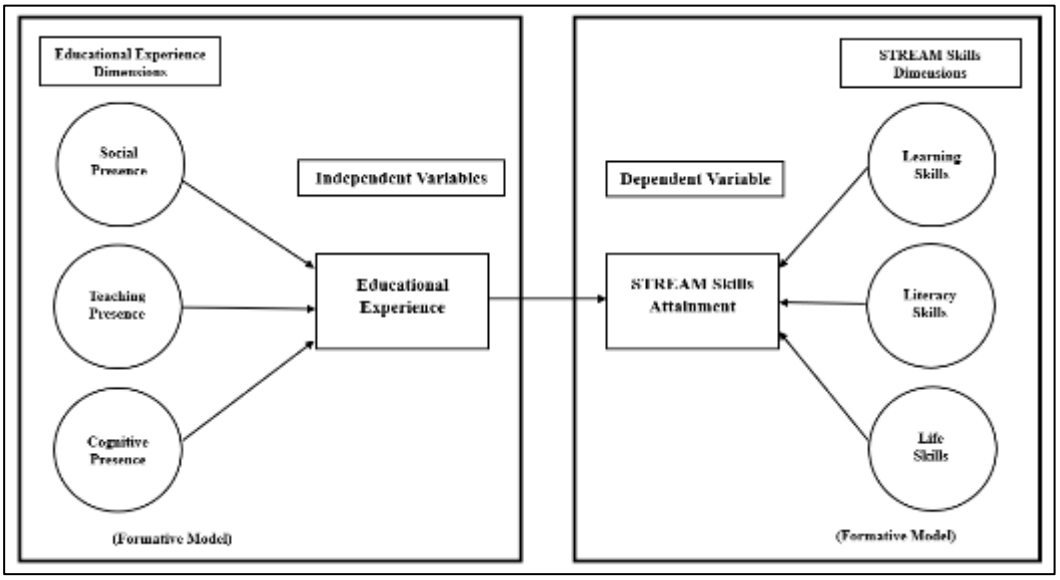

Figure 2 – Proposed Research Framework
Source: Garrison et al. (1999); Stauffer (2022)

For this proposed research, engagement is depicted by social presence, which involves "feeling connected" and "involved" with others in the learning environment (Garrison et al., 2000). This aims to create a supportive and collaborative atmosphere, where learners feel comfortable expressing their thoughts while simultaneously enhancing their STREAM skills, encompassing both learning and life skills.

Teaching presence, defined as the design, delivery, facilitation, and use of multimedia resources, is linked to engagement, critical thinking, and interaction through technology

support, such as Learning Management Systems (LMS) (Garrison et al., 2000). Through clear instructional strategies, effective feedback mechanisms, and appropriate learning activities, teaching presence assists students in navigating the learning content and gaining a deeper understanding of the subject matter. This indirectly fosters the development of their learning, literacy, and life skills, all of which are pivotal components of STREAM skills.

Similarly, cognitive presence emphasises students' engagement, interaction, and critical thinking facilitated by technology. Technology supports cognitive presence by offering tools for collaborative discussions through online forums, video conferencing, and shared documents, creating a platform for meaningful intellectual discourse (Garrison et al., 2000). This aids students in understanding STREAM skills themes, as well as developing learning, literacy, and life skills.

The adoption of COI as the underlying theory is supported by existing literatures (Damm, 2016; Kang & Park, 2001), which confirm that the educational experience resulting from the interaction of social presence, teaching presence, and cognitive presence is closely linked to effective learning outcomes. Furthermore, the adoption of COI is reinforced by the limited research conducted on testing COI theory in the context of STREAM skills attainment. Recent research focusing on online learning success factors further supports this gap, presenting an opportunity for researchers to contribute novelty to the body of knowledge related to educational experiences and STREAM skills attainment among MBA students.

Methodology

The researchers intend to utilise measuring instruments from established literature sources. For educational experiences variable encompassing the dimension of social presence, teaching presence, and cognitive presence, the measuring instruments will be adopted from Swan et al. (2008). The decision is rooted in the alignment of their definitions for each dimension of educational experience with the COI theory definitions of Garrison et al. (1999), which serves as this research underpinning theory. Swan et al.'s (2008) work validates the measuring instruments in higher education online learning, building upon Garrison et al.'s (1999) original framework, thus highlighting the consistency of definitions. Besides, the validation suggests a heightened suitability of their measuring instruments for this research.

Stauffer (2022) advocates that STREAM skills must encompass 21st-century skills, including learning skills, literacy skills, and life skills. Measuring instruments to assess these skills will be adopted from Hixson et al. (2012); Ahmad et al. (2019); and Martins-Pacheco et al. (2020) respectively. The rationale for adopting these measuring instruments stems from their validation within the higher education context, rendering them pertinent to this research.
To ensure the relevance of all items within the research context, adjustments or adaptations will be made as necessary. The researchers will then subject these items to a face validity process, involving field experts who will scrutinise, comment on, and provide recommendations for corrections where needed. This process aims to remove grammatical errors and enhance clarity, which is essential for achieving the research's objectives prior to actual data collection (Creswell & Creswell, 2017). In addition to face validity, the researchers will conduct both formative and reflective measurement model analyses, covering internal consistency, convergent validity, collinearity, and discriminant validity. These analyses not

only serve to confirm the validity and reliability of the items but also to delineate the content domain clearly, especially for the formative model (Ramayah et al., 2018).

Expected Outcomes and Contributions

This research is expected to offer empirical evidence on the importance of educators in ensuring the existence of "educational experience" in virtual class. This is because, the presence of educational experience, that encompasses three main dimensions (e.g., social presence, teaching presence, and cognitive presence), allegedly can help students to successfully attain the STREAM skills especially in virtual learning environments. Furthermore, this research seeks to find answers if there are significant differences in both educational experience and STREAM skills attainment between online and hybrid modes via comparison analysis. The researchers are anticipating that hybrid learning students will show higher development and mastery of STREAM skills. This is because hybrid learning students are more expose to the opportunities in experiencing physical engagement and interaction as compared to virtual learning students. The results of this research are also expected to highlight the importance of inclusivity, engagement, as well as supportive learning environments in overcoming any possible challenges, commonly encountered or occurred in virtual education (e.g., restricted student interaction, poor engagements, weak soft skill acquisition, and ineffective communication).

This research is also anticipated to contribute to the existing body of knowledge by presenting a focused investigation on how "educational experience" influences STREAM skills attainment or development in postgraduate virtual learning, a relatively underexplored area in Malaysian higher education. Through the adoption of a formative model namely, the Community of Inquiry framework while aligning it with the Sustainable Development Goal 4 agenda (Quality Education), this research provides a strategic view especially for educators, policymakers, and institutions in their efforts to improve virtual and blended learning in terms of quality and inclusivity. Additionally, this research offers practical implications for instructional design, suggesting that a well-structured educational experience can connect the current gap in soft and technical skill mastery among future entrepreneurs and professionals. Finally, the outcomes are anticipated to support Malaysia's grand ambition to produce competent talent that is crucial to achieving national economic resilience and sustainable growth.

Conclusion

This conceptual paper has presented a critical reflection on the challenges and opportunities surrounding STREAM skills attainment among MBA students within virtual and blended learning environments in Malaysia. Rooted in the Sustainable Development Goal 4 agenda and underpinned by the Communities of Inquiry (CoI) framework, the proposed model emphasizes the centrality of educational experience, encompassing teaching presence, social presence, and cognitive presence, as a catalyst for fostering 21st-century competencies. Given the increasing shift toward online and hybrid learning environment in higher education, the lack of engagement, limited interaction, and diminished inclusivity have emerged as pressing issues that hinder both technical and soft skill development.

By integrating the STREAM approach, this study advocates for a holistic educational experience that can bridge the skills gap and produce graduates who are workplace-ready, innovative, and entrepreneurial. The proposed research framework offers theoretical and

practical insights by linking educational experience with the acquisition of learning, literacy, and life skills, which are pivotal in today's complex and competitive global economy. Additionally, this paper responds to calls in the literature to explore postgraduate-level virtual learning contexts, an area that remains underexplored but increasingly relevant.

Moving forward, this conceptual model lays the foundation for empirical validation and the development of pedagogical strategies that support inclusive, engaging, and effective learning environments. The anticipated contributions extend to educators, policymakers, and higher education institutions, offering evidence-based guidance for curriculum design, teaching strategies, and digital learning policies aimed at enhancing STREAM skills attainment. Ultimately, this research aspires to support Malaysia's broader educational transformation goals and economic resilience agenda by equipping MBA graduates with the skills necessary for future-ready leadership.

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