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THE IMPACT OF DIGITAL EDUCATION ON MALAYSIAN STUDENTS: A SIGNIFICANT REVIEW

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Abstract:

This scoping article investigates the profound implications of digital education on Malaysian students, aiming to provide a comprehensive overview of its impact. The introduction delineates the evolving landscape of education in the digital age and underscores the increasing reliance on technology for learning. The problem statement identifies key challenges faced by Malaysian students in adapting to digital education, such as technological disparities, access limitations, and potential disparities in the quality of online education. Employing a mixed-methods approach, the methodology combines quantitative surveys to gauge the extent of digital education adoption and qualitative interviews to explore the nuanced experiences and perceptions of students. The expected results anticipate a multifaceted impact, including enhanced accessibility, potential disparities, and varying degrees of adaptability. This study envisions contributing valuable insights to policymakers, educators, and stakeholders in refining digital education strategies tailored to the Malaysian context. In conclusion, the article discusses the broader implications of the findings, emphasizing the need for equitable digital infrastructure and pedagogical innovations to ensure a positive and inclusive educational transformation in Malaysia.

Keywords:

Impact, Digital Education, Students

Introduction

In the rapidly evolving education landscape, digital technology has emerged as a pivotal element in shaping learning experiences (Haleem, Javaid, Qadri, & Suman, 2022). This is particularly evident in Malaysia, a nation at the forefront of integrating digital education into its academic curriculum. "The Impact of Digital Education on Malaysian Students: A Significant Review" aims to explore this paradigm shift and its multifaceted implications on Malaysian students. The advent of digital education represents a significant departure from traditional pedagogical approaches, offering unprecedented accessibility to educational resources and novel methods of student engagement (Bucăţa, Popescu, & Tileagă, 2022; Caena & Redecker, 2019; Vodă, Cautisanu, Grădinaru, Tănăsescu, & de Moraes, 2022). In Malaysia, a country with diverse socioeconomic backgrounds and educational needs, digital education has the potential to bridge gaps and foster inclusive learning (Hill & Smith, 1998). However, the transition is not without challenges. Issues such as the digital divide, the effectiveness of online learning methodologies, and the impact on students' cognitive and emotional development are at the heart of this discourse (Elgoudman & Sahmi, 2022; Oborah, 2022).

This review delves into the current state of digital education in Malaysia, examining its impact on various aspects of student life and learning. It considers how digital tools and platforms have transformed the educational landscape, the extent to which they have enhanced or hindered learning experiences, and their long-term effects on students' academic performance and skill development. Furthermore, the study explores the broader societal implications, including equity in education and preparation for a digital future (Akour & Alenezi, 2022). Through a thorough analysis of existing literature, case studies, and empirical data, this review aims to provide a holistic understanding of the impact of digital education in Malaysia. It also seeks to offer insights for educators, policymakers, and stakeholders in the education sector, highlighting best practices and identifying areas for further research and development.

Table 1: The Search String

Scopus	TITLE-ABS-KEY (impact AND digital AND education AND student) AND (LIMIT-TO (DOCTYPE, "ar") OR LIMIT-TO (DOCTYPE, "cp")) AND (LIMIT-TO (PUBSTAGE, "final")) AND (LIMIT-TO (AFFILCOUNTRY, "Malaysia")) AND (LIMIT-TO (LANGUAGE, "English")) AND (LIMIT-TO (PUBYEAR, 2023)) AND (LIMIT-TO (SUBJAREA, "SOCI"))

Table 2: The Selection Criterion is Searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Timeline	2023	< 2023
Literature type	Journal (Article) and Proceeding	Book, Review
Subject area	Social Sciences	Non-Social Sciences

Review of Study

Unveiling Opportunities
The study focuses on the gaps in the current literature on digital media in education and its impact on academic achievement in higher education. The goal is to create a model identifying key elements influencing Time-Task-Financial (TTF) and Communication-Technology (CT) learning theories, focusing on research students' satisfaction and academic performance. A survey of 1,330 students at Universiti Kebangsaan Malaysia (UKM) revealed significant associations between technological, task, and social characteristics and TTF. This includes online communication factors and CT, positively affecting satisfaction and academic performance. The study concludes that integrating TTF and CT concepts with digital media enhances active learning, urging students to use these platforms and encouraging educators to adopt them in higher education (Al-Rahmi et al., 2023).

This study discusses the potential of digital entrepreneurship as a solution to challenges faced by young individuals and future workers in Asia. The lack of research in this area prompts the need for additional studies to better comprehend digital entrepreneurship. The research focuses on determining factors influencing the inclination to engage in digital entrepreneurship, particularly personal traits, resilience, and educational service quality. Furthermore, university students, viewed as potential future workforce and digital entrepreneurs, form the study's participants. Through online surveys in Malaysia and Indonesia, 517 sample data were collected and analyzed using structural equation modeling. Accordingly, the results indicate that an individual's openness to experience and resilience impact the intention to pursue digital entrepreneurship. Additionally, service quality influences both digital entrepreneurship intention and resilience. The study suggests that enhancing education service quality can foster students' inclination toward digital entrepreneurship and improve their resilience (Sahrah et al., 2023).

This study addresses the substantial impact of the COVID-19 pandemic on academic achievement globally, particularly through the adoption of virtual learning. The focus is on enhancing student performance, necessitating a comprehensive understanding of their current conditions. The study proposes a statistical investigation, employing Multiple Correspondence Analysis, to examine students' performance and challenges during online learning. The research identifies two distinct student profiles conducted at UPSI with 234 mathematics undergraduates. As a result, high-achieving students prefer face-to-face learning due to poor mobile data connectivity. At the same time, average performers find online learning accessible with stable home Wi-Fi despite potential family interruptions (Rosmadi, Shaharudin, Rajoo, Tarmizi, & Samsudin, 2023).

The issue discusses a study addressing the increasing concern of youth unemployment, particularly focusing on the often-neglected entrepreneurial endeavors of medical students. The research, involving 318 Malaysian medical students, explores the influence of entrepreneurial personality traits on nascent entrepreneurial behavior. Despite medical students exhibiting high levels of traits like the need for achievement, locus of control, and self-efficacy, their actual nascent entrepreneurial behavior is discovered to be moderately low. Moreover, the study establishes a significant positive correlation between entrepreneurial traits and the development of entrepreneurial behavior, shedding light on the unique entrepreneurial characteristics of

Malaysian medical students. In addition, the paradoxical coexistence of positive traits with suboptimal nascent entrepreneurial behavior is a notable implication of the findings (Kumar et al., 2023).

The COVID-19 pandemic has transformed conventional medical education into open distance learning using digital platforms. A study at UKM explored the impact of digital learning on the motivation of medical students before and during the pandemic. While there was a significant increase in digital learning during the pandemic, learning motivation remained unaffected. Additionally, clinical students exhibited higher engagement with digital learning than preclinical students. Therefore, the study suggests leveraging digital learning as an additional factor to boost motivation, especially during the current pandemic (Lee, Ahmad Azman, Ng, & Ismail, 2023).
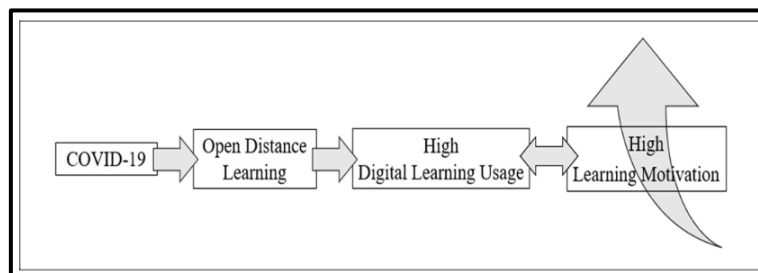

Figure 1: The Relationship Between Digital Learning Usage And Learning Motivation In Open Distance Learning

A Holistic Examination

The study focuses on the rapid expansion of the digital realm, which has presented unique challenges for educators, particularly regarding the potential impact of teachers' unprofessional online behavior on their careers and the teaching profession's reputation. A constructivist grounded theory research project involving interviews with 38 Physics Student Teachers (PSTs) explored how these individuals perceive e-professionalism and its repercussions for their future teaching careers. The study revealed a prevalent use of social media platforms such as Facebook, Instagram, WhatsApp, Telegram, and TikTok, where the boundaries between social and professional identities often blur. Notably, the PSTs' engagement in activities like classroom selfies and political expressions on social media is linked to a lack of specific regulations. Furthermore, the research identified a concerning hesitation among PSTs to address inappropriate online behaviors, indicative of a broader lack of professional awareness and understanding of e-professionalism, stemming from an insufficient emphasis during their training period. Moreover, the study underscores the need for a tailored teacher education curriculum to address the complexities of e-professionalism effectively (Nasri, Rahimi, Hashim, & Nasri, 2023).

The research investigates the impact of the KaniMani Storytelling Mobile Application (KM-SMA) on the speaking skills and motivation of 36 Tamil students aged 7 to 8. Through a randomized assignment into experimental and control groups, the study, conducted in Johor, Malaysia, employed pre-post speaking tests and a motivation questionnaire. Results indicated that KM-SMA participants outperformed the control group in both motivation and speaking skills, emphasizing the crucial role of mobile applications in language instruction. Hence, the study advocated for integrating such applications into the Tamil language curriculum (Ramalingam & Jiar, 2023).

The meta-analysis investigated the effectiveness of the flipped classroom approach in programming education compared to traditional teaching methods. It examines the impact on student's performance, problem-solving abilities, and behavioral outcomes, considering various factors such as discipline, student type, and level. The study, covering articles published from 2010 to 2021, retrieved 101 articles, with 27 meeting the inclusion criteria. Results revealed a significant improvement in students' achievement with the flipped classroom method and positive effects on behavioral outcomes, particularly satisfaction. Note that subject areas within programming also influence these outcomes. However, no evidence of publication bias was discovered. Therefore, the study underscored the need for further research to comprehensively understand the effects of the flipped classroom model on programming students' learning outcomes (Almassri & Zaharudin, 2023).

The study discusses the increasing use of Blended Learning (BL) tools in higher education, emphasizing their integration with face-to-face teaching to manage programs and expedite educational processes. BL is perceived as a means to enhance students' higher cognitive skills through communication and active learning. Despite the key role played by academic staff in BL implementation, there is limited information on their perspectives and usage of BL. The study addressed this gap by conducting a survey and qualitative analysis of academic staff in a Malaysian private higher education institution. Results indicated that the commonly used digital tools prioritize program management efficiency over students' higher cognitive skill development. Furthermore, the study recommended mandatory staff professional development in BL, emphasizing the fusion of technological skills with pedagogical approaches to advance students' higher cognitive skills (Crosling, Lee, Passey, & Azizan, 2023).
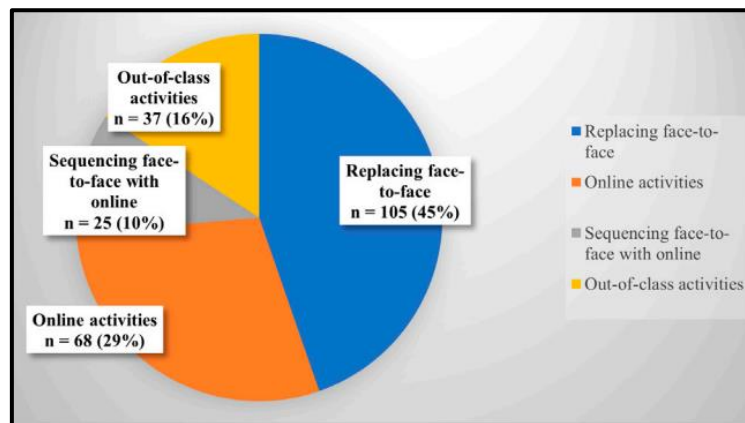

Figure 2: Ways BL Used in Respondents' Courses

The study investigated the influence of an Arduino-based educational game on secondary school students' understanding of genetics. Utilizing Solomon's four-group design, 72 8th-grade students were randomly assigned to experimental and control groups. While no statistically significant differences in academic performance were observed, the educational game positively impacted students' success, proving as effective as traditional teaching methods. Notably, the digital game suggested the potential to enhance student engagement in science classes, promoting environmentally sustainable practices and ensuring a high-quality education for all, thereby supporting educational system sustainability (Arpaci, Kaya, & Bahari, 2023).

The study investigated the imperative for higher education institutions to adapt to the post-digital era in light of the COVID-19 pandemic. The study evaluated students' perspectives on using MS Teams for remote learning, employing the Technology Acceptance Model (TAM) as a theoretical framework. The results indicated positive views of MS Teams, with self-efficacy being the highest-rated aspect. In addition, the platform has successfully overcome distance and time barriers in teaching and learning. As discussions on the future of higher education post-pandemic progress, it is crucial to consider the impact of COVID-19 on student learning and propose strategies for sustainable and effective post-pandemic education (Mahmud & Wong, 2023).

Digital Horizons in Malaysian Higher Education

The study discussed the transformative impact of Non-Fungible Tokens (NFTs) on digital artists, granting them increased freedom to create and sell innovative art. Despite the growing importance of NFTs in the digital era, skepticism persists in Malaysia. The paragraph introduced a study that explores the potential benefits of NFTs for creative students through qualitative research and TAM. By reviewing various sources, the research intended to lay the foundation for future initiatives integrating NFTs into high art education, fostering the growth of the creative industries (Sahharil, Kamaruzaman, & Rosli, 2023).

The study investigated the impact of a BL approach on the oral production skills of first-year Arab university students studying English as a Foreign Language (EFL). The research, involving 120 students from Syria, Jordan, Egypt, and Saudi Arabia, employs a mixed-methods approach with experimental and control groups. The results indicated that the BL approach positively influences students' oral proficiency, enhancing achievement and engagement. However, instructors face challenges such as limited technology infrastructure, uneven digital literacy, and cultural norms. In addition, the findings underscored the need for pedagogical adaptation, technological competence, content creation, and personalized learning in implementing BL in Arab EFL classrooms (Ali et al., 2023).

The research explores the impact of social media on the psychological well-being of young unmarried adults in Malaysia, specifically Generation Z, during the COVID-19 pandemic. Contrary to existing literature, based on an online survey of 103 participants, the study discovered no significant correlation between feelings of loneliness and the use of social networking sites or messaging apps. Even weak or moderate associations identified are likely due to chance factors. The findings challenged the notion of a direct link between social media usage and loneliness, supporting the idea that these platforms may not substantially impact well-being independent of their role in facilitating in-person interactions. Hence, possible explanations included Malaysia's shared cultural values acting as a buffer against the adverse effects of the pandemic and the use of digital technology. Hence, further discussion on implications and potential explanations is warranted (De Rycker & Abdul Jamal, 2023).

The study explored the increasing use of Digital Game-Based Learning (DGBL) in early childhood education. While acknowledging the potential of DGBL to transform childhood learning, the research highlights the lack of clarity on its actual impact. With a systematic literature review of 37 articles using Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) principles, the study focuses on objectives, technology's impact on learning, learning theories, and assessment methods in DGBL applications. Results indicated that DGBL can actively strengthen thinking skills and learning in childhood. Moreover, the

article discussed the evolution of DGBL, challenges, and benefits, offering valuable insights for researchers, game designers, and developers in the DGBL field (Behnamnia, Kamsin, Ismail, & Hayati, 2023).

The study investigated the shift towards e-learning in Malaysian higher education during the COVID-19 pandemic. Using structured questionnaires and Structural Equation Modeling (SEM), the research identified key determinants influencing students' intentions to adopt e-learning. The findings highlighted that attitude, subjective norm, perceived usefulness, and perceived behavioral control positively contribute to the intention to use e-learning. However, subjective norms exhibited no significant impact, possibly due to the urgency imposed by the pandemic. Notably, perceived ease of use and usefulness significantly influenced attitude. Accordingly, the study provided practical guidelines for educational institutions aiming to implement e-learning systems during emergencies for a sustainable education system (Ramasamy, Shahzad, & Hassan, 2023).
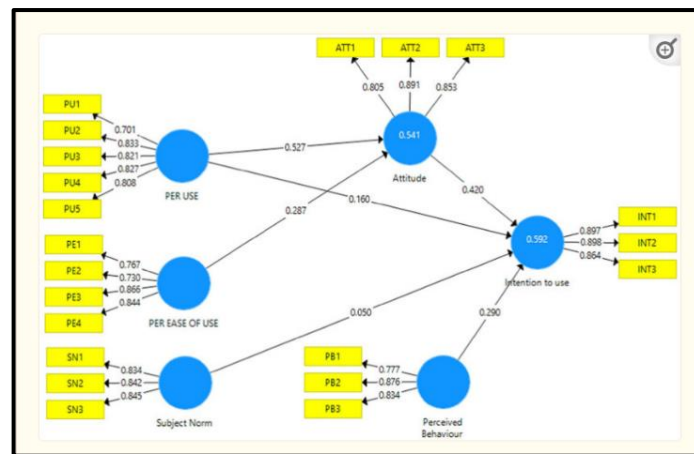
Figure 3: PLS Algorithm

Discussion

The studies reviewed collectively address significant aspects of digital media and technology in education, reflecting on various educational contexts and levels. The recurring theme is the exploration of digital tools' impact on students' satisfaction, performance, and motivation across different disciplines. Studies like Al-Rahmi et al. (2023) and Sahrah et al. (2023) emphasize the relationship between technological integration and academic achievement, highlighting the positive effects of Time-Task-Financial (TTF) and Communication-Technology (CT) learning theories. The focus on digital entrepreneurship and its relation to personal traits and educational quality reveals emerging fields of interest in education research. Rosmadi et al. (2023) and Kumar et al. (2023) bring into perspective the challenges and preferences of students in online and entrepreneurial environments. The shift in medical education towards digital platforms, as observed by Lee et al. (2023), signifies a broader transformation in educational practices. The studies on e-professionalism, mobile applications in language instruction, flipped classroom methods, and Blended Learning (BL) tools (Crosling et al., 2023; Ramalingam & Jiar, 2023; Almassri & Zaharudin, 2023; Arpaci et al., 2023) reflect an evolving landscape in educational methodologies. These insights are crucial for understanding the dynamics of digital learning environments and their implications for future educational practices.

Conclusion

The comprehensive analysis of the studies underscores the integral role of digital media and technology in enhancing educational experiences and outcomes. The significant associations found between technological aspects and student satisfaction and performance indicate that the integration of digital tools is not merely a trend but a necessity in modern education. The emphasis on digital entrepreneurship and the need for resilience in education point to new directions for curriculum development. The studies suggest a potential shift in teaching and learning paradigms, advocating for a more robust integration of digital tools and platforms in education. The research collectively highlights the importance of adapting to digital advancements and the necessity for educators and institutions to embrace these changes to improve academic achievement and prepare students for future challenges. These findings are instrumental in guiding future educational strategies and policy-making, ensuring that the education sector remains relevant and effective in an increasingly digital world.

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