Promoting Quality Student Learning in the Post-COVID-19 Era

Will technology-led Education and AI offer better Learning Experience?

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Impacts of COVID-19 Pandemic on Higher Education

- The advent of COVID-19 at the beginning of 2020 put universities worldwide into one of the most significant educational disruptions ever experienced.
- According to UNESCO, on 1 April 2020, schools and higher education institutions (HEIs) were closed in 185 countries, affecting 1.5 billion learners, which constitute 89.4% of total enrolled learners (UNESCO, 2020).
- The unrelenting pandemic forced universities to turn to technology to ensure continuity of education.

Transition to Technology-Led Learning

- An increase in demand for online education has led to the creation of a new technology, machine teachers, or artificial intelligence (AI) teaching assistants.
- Virtual learning systems offer significant potential benefits by providing remote learning opportunities and granting access to abundant learning resources in higher education institutions (Dhawan, 2020; Zhang et al. 2021).
- In the meantime, research exploring what constitutes well-designed online learning and its effectiveness is accumulating (Castro & Tumibay, 2021).

Paradigm Shift in Higher Education Landscape

- This abruptly changed learning modes for students, with potential implications on the quality of education and the student experience.
- This 'rush-to' transfer has brought the new phenomenon called "emergency online learning", which has created many confusions to instructors, students and higher education administrators (Chung et al., 2020; Korkmaz & Toraman, 2020; Pokhrel & Chhetri, 2021).
- Education systems are trying to continue imparting quality education for all, yet the best practices for achieving such standards in the post-COVID era are still being explored (Petrie, 2020).

Literature Review

- Digital technology has played a vital role in providing continuity of education delivery via online learning platforms during the COVID-19 pandemic. However, Despite the recent plethora of novel research in the field of online learning (Bao, 2020), contradictory opinions relating to the matter of online course characteristics still exist (Gössling et al., 2020).
- This growing body of research focused on evaluating and analysing technology-led learning across various dimensions, such as instructional design, teaching strategies for specific student groups, and assessment of learning outcomes (e.g., Turnbull et al., 2021; Zhang et al., 2022)
- However, there is a lack of research that comprehensively analysis the student perspectives towards technology-led learning during and after the pandemic, particularly in relation to the delivery of high-quality education and effective learning experiences.

Objective of this study

- As evidenced by several systematic reviews on the online study and technological learning experience of students in HEIs (e.g., Castro & Tumibay, 2021; Choudhury & Pattnaik, 2020; Cramarenco et al., 2023), it is evident that more effort is required to be invested in identifying and overcoming potential technology-led learning obstacles from the student perspective.
- This paper sets out against the context of post-COVID-19 era to critically examine how students in Asia assess their learning experiences online.
- More specifically, this paper also discusses whether the drive for technology-led education and AI would provide better student learning.

Perceptions of East Asian Students

- According to a study conducted by Choi et al. (2021) on university students from South Korea and Malaysia, it was found that 95% of the students expressed a moderate to high level of satisfaction with online classes during the opening semester of 2020.
- Kim et al. (2021) proposed that Chinese students studying in Korea perceived the convenience of online classes and personalized learning as notable strengths. Similarly, Zhang and Chen (2023) conducted a case study at a leading applied sciences university in China during the COVID-19 period, whereby their findings illuminated a shift towards more self-directed and flexible learning processes.
- However, the studies conducted by Zhang and Chen (2023) indicated that virtual communication was perceived as functioning perfectly by a mere 4% of students, predominantly by 15%, partially by 29%, hardly at all by 41%, and not at all by 11%.
- Additionally, Cao et al. (2020) noted that university learners in China were particularly susceptible to changes in teaching practices as the psychological impact of the COVID-19 brought about greater levels of anxiety and other mental health issues.

- The Hong Kong government and higher education institutions are exploring how to ensure quality attainments for university students' online learning, especially against the pandemic context (Hong Kong Legislative Council, 2020).
- A descriptive quantitative study was conducted to examine how students in higher education institutions in Hong Kong evaluated their online learning experiences during the pandemic. The findings indicated that a majority of the respondents expressed dissatisfaction with their online learning experiences and perceived effectiveness (Mok et al., 2021).

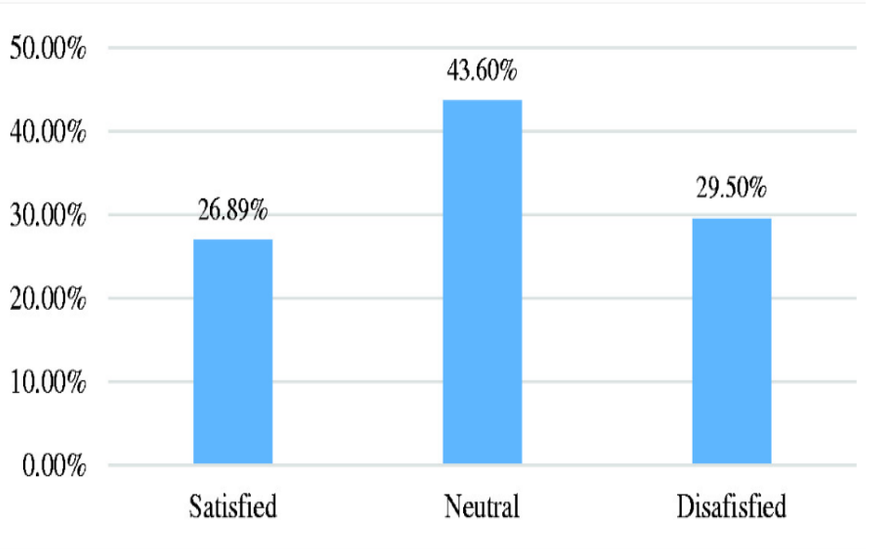


Figure 3. Respondents' overall satisfaction with their online learning experiences.

Perceptions of South Asian Students

- Students have diverse perceptions of the implementation of online learning during the COVID-19 pandemic in Indonesia (Saputra et al., 2021).
  - Students who have positive thoughts consider online learning as a fun activity and can make individuals more independent in learning.
  - While students who think negatively view online learning as an ineffective, unpleasant activity, and even limit students to actualize themselves
- Chung et al. (2020) conducted a study examining the online learning experience of 399 university students in Malaysia. The findings revealed that females demonstrated a higher readiness for online learning compared to males. Additionally, degree students exhibited greater readiness compared to diploma students. Interestingly, more than half of the respondents expressed a preference not to continue with online learning in the future.
- Sonia and Kumar (2020) conducted a survey among higher education students in India to assess their satisfaction with online teaching and gather their opinions on the adoption of online classes, computerized assessments, and E-examinations. The findings indicate that while students exhibit a preference for classroom teaching over online teaching, they also express an interest in computer-aided assessments.

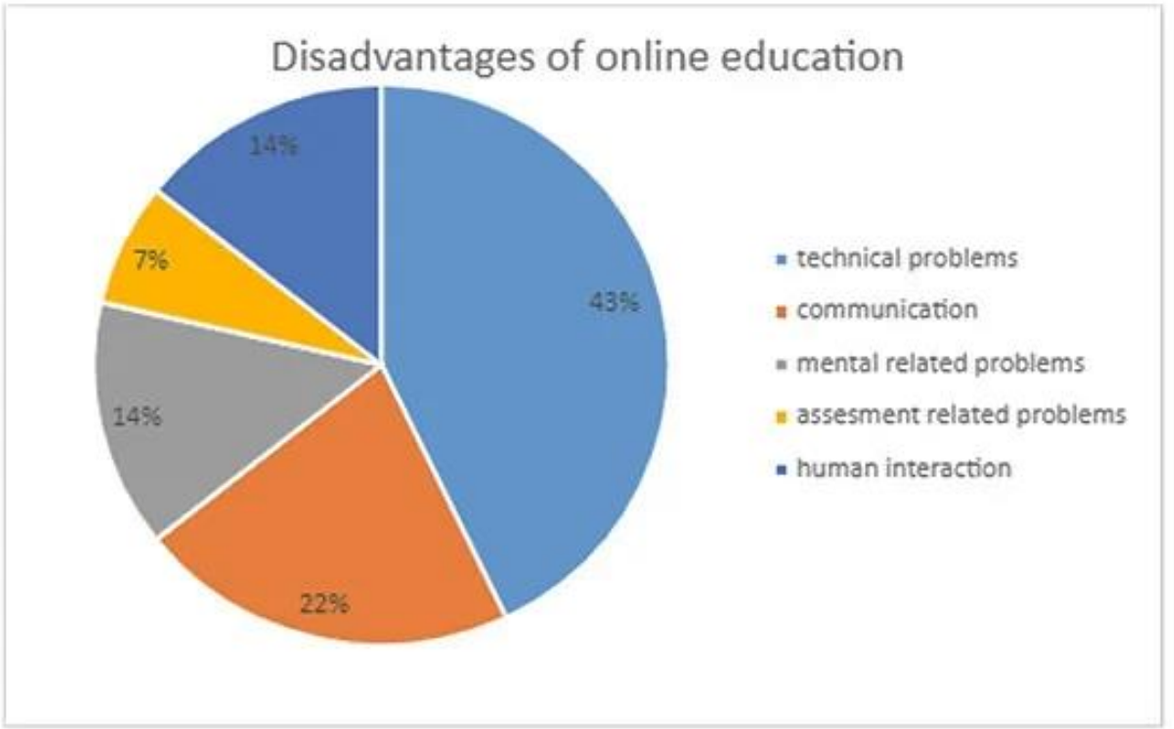
Fahruddin et al. (2022) conducted a study in Indonesia to investigate student perceptions of lectures conducted through various platforms. The data analysis revealed that students had higher perceptions of the WhatsApp Groups, followed by Zoom, and finally Google Classroom.

In a case study conducted by Rahman (2022), the adoption of Artificial Intelligence-based Online Proctored Examination (OPE) at Nowgong College in India, during the COVID-19 pandemic was investigated. The findings highlighted that students expressed significant negativity and reluctance towards the future use of OPE due to various reasons, including technical and financial issues, as well as concerns about the environmental and psychological implications. The results revealed that additional costs, lack of compatible devices, low bandwidth in rural areas, technical inability of students are the major challenges in implementing OPE successfully.

Cross-regional Observations

- Eri et al. (2021) explored student perceptions of digital competence, confidence, and resilience during the pandemic, using survey data from tertiary students in Australia, Cambodia, China, India, and Malaysia.
- The findings revealed that a significant portion of students expressed a preference for face-to-face teaching and learning as the most preferred mode of instruction.
- It is noteworthy that there has been a notable shift in preferences, with approximately 58 percent of students favoring face-to-face learning pre-COVID, increasing to 70 percent post the first wave of the COVID-19 pandemic.
- Interestingly, the respondents demonstrated a preference for face-to-face learning, despite having to adapt to online or distance learning due to various circumstances or constraints.

- Cramarenco et al. (2023) conducted a systematic review encompassing research conducted from March 2020 to September 2022, specifically focusing on emergency remote teaching.
- The main findings of this systematic review revealed predominantly positive perceptions of online education attributed to the integration of innovative technologies.
- However, it also concluded that students expressed negative perceptions specifically related to the technology-led learning experience.



Challenges of Technology-led Education

- Broadly identified challenges with online learning are accessibility, affordability, flexibility, learning pedagogy, life-long learning and educational policy (Adnan & Anwar, 2020; Murgatrotd, 2020).
- Students from economically disadvantaged backgrounds often encounter financial barriers that prevent them from accessing necessary online learning devices (Altbach & De Wit, 2020; Mok, 2020). Consequently, these students are more likely to experience feelings of dissatisfaction with their online learning experiences (Mok et al., 2021).

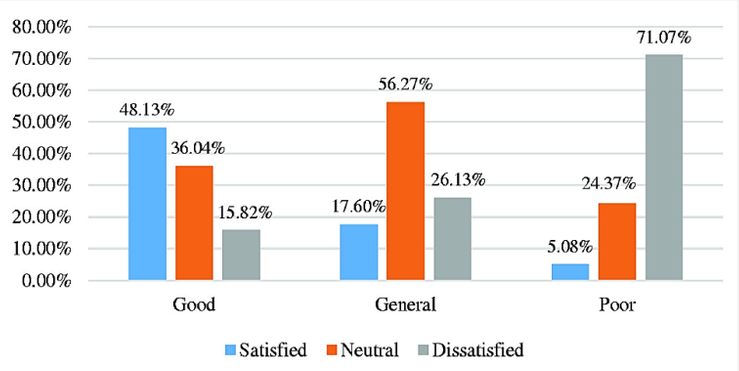


Figure 4. Respondents' IT proficiency level and their overall satisfaction with online learning experiences.

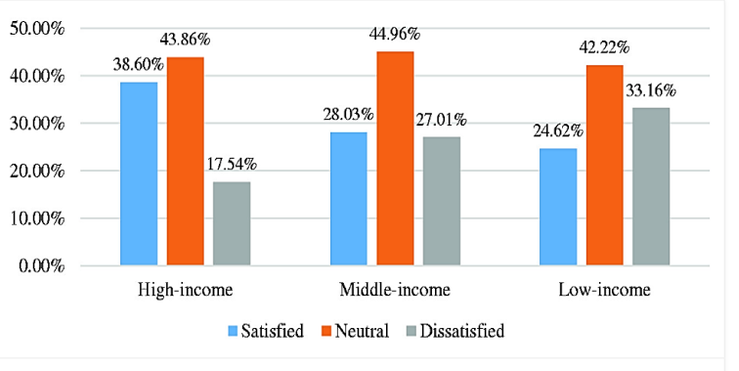


Figure 5. Respondents' household income level and their overall satisfaction with online learning experiences.

- The level of academic performance of the students is likely to drop due to the lack of self-regulation and the inadequate consultation with teachers when facing difficulties in learning/understanding (Choi et al., 2020; Sintema, 2020; Rasheed et al., 2020; Ravi & Somesh, 2021).
- Furthermore, Wang et al. (2020) found that non-graduating undergraduate students experienced higher levels of anxiety one month after the start of online learning in the new semester, which eventually will result in deplorable overall well-being (Zhai & Du, 2020)

Challenges of Technology-led Education

- The post-COVID era seems to have posed more challenges from the perspectives of students.
- In a study conducted by Zhang and Chen (2023) at a Chinese university, it was revealed that 61% of students reported spending more time on university courses than usual. Additionally, students expressed a lack of interaction with peers and teachers, indicating that communication and collaboration were not entirely successful in the post-COVID era.
- Zizka and Probst (2022) conducted a study investigating student perceptions and technology usage over the span of four semesters. The study suggests that the challenges of spending hours online alone demotivated other students and made them wish to return to ‘normal’ onsite education.

Discussion: Whether the drive for technology-led education and AI would provide better student learning?

- The aforementioned studies revealed that students in higher education institutions in Asia expressed a notable level of dissatisfaction with the effectiveness of online learning, particularly when compared to traditional face-to-face classes.
- In critical reflections regarding the effectiveness of technology-led education and the utilization of artificial intelligence tools, particularly in the post-COVID era, scholars (Amoah & Mok, 2020; Hong, 2020; Mok & Xiong, 2021; Wang et al., 2020) have contended that the attainment of quality learning outcomes relies on meticulous instructional design, thorough planning, and the active engagement of learners.
- The acquisition of knowledge cannot be fully achieved only through the transmissive approach but through the participatory model with a strong collaborative process for knowledge creation (Scardamalia & Bereiter, 2003; 2016).

Conclusion

- This investigation into perspectives on the paradigm shift in learning within higher education institutions contributes to the advancement and conceptualization of future provisions for technology-led higher education.
- The reliance on technology has brought attention to the fact that not all students possess equal access to necessary infrastructure, nor do they possess the skills and literacies required to navigate digital spaces optimally (Beaunoyer et al., 2020).
- Crucial for the future of higher education is the imperative of engaging in participatory design that involves a realistic and sustainable level of guidance or collaboration from educators, learners and academic institutions (McKenney, 2013), with their leadership driving innovation in quality education during the digital era.

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