E-LEARNING THROUGH STUDENT VOICES: AN EXPLORATORY STUDY IN HEALTH SCIENCES EDUCATION

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Abstract: The widespread adoption of e-learning in higher education has persisted beyond the COVID-19 pandemic. By capturing the voices of health sciences students, this study aimed at providing a rich and robust understanding of their experiences with online learning. An exploratory study was conducted at University of 'Aisyiyah Yogyakarta using purposive sampling, involving 30 health sciences students from various disciplines, including nursing, anesthesiology, midwifery, physiotherapy, nutrition, medical laboratory technology, and radiology. Data were collected through in-depth semi-structured interviews and analyzed using content analysis to gain a comprehensive understanding of students' perceptions and experiences regarding online learning. This study found that health sciences students generally perceived online learning positively, highlighting its ease of access, flexibility, and enhanced communication as key advantages. Participants noted that the online format facilitated greater engagement and improved their ability to plan and participate in case-based learning activities presented by lecturers. Despite these benefits, students expressed reservations about the complete substitution of face-to-face instruction. They emphasized that, due to the practical and hands-on nature of health sciences education, online learning should serve as a complementary approach rather than a full replacement for traditional in-person learning.

Keywords: *E-Learning, students perception, Health Science Education*

While the COVID-19 pandemic has subsided as a public health emergency, its influence on the transformation of educational practices - particularly the shift from conventional face-to-face instruction to digital learning - continues to be profound across higher education, including within health sciences disciplines. E-learning, once a complementary strategy, now constitutes a foundational element of modern academic delivery. E-learning refers to a mode of education that leverages internet-based technologies to deliver instructional content remotely and enabling learners to engage with course materials without being physically present in a traditional classroom setting (Moustafa Elpasiony et al., 2021; Susilana et al., 2020; Zapata-Cuervo et al., 2023).

In recent years, this learning approach has gained widespread recognition within healthcare education, encompassing fields such as nursing, midwifery, pharmacy, and other allied health professions. Despite its growing adoption, its impact on learner performance continues to be debated within academic and clinical education contexts (Almansour et al., 2024; Regmi & Jones, 2020; Swaminathan et al., 2021). Rojabi (2020) and Pramana et al., (2022) declared that online learning enhances students' ability to access learning materials as needed, largely due to the ease of use with which content can be distributed through digital platforms. Similarly, Muthuprasad et al., (2021) reported that students perceive online learning as highly engaging, attributing this to the flexibility it offers in terms of time and location. However, in health sciences education setting, as Zhang et al., (2023) argues, a majority of students (over 50%) perceived convenience as the most significant benefit of online learning, whereas reduced learning efficiency was cited as a notable drawback; Common barriers to effective online learning included digital eyestrain, poor internet connectivity, and inadequate home

learning environments (Nigeria et al., 2022; Rana Khagi et al., 2021). Maherhwari et al., (2022) also stated that students reported that online learning could be distracting and time-consuming, and they expressed concerns that it did not provide an adequate pace for effective learning.

In order to contribute meaningfully to the ongoing discourse, a systematic exploratory study is needed to generate a robust narrative and deepen insights into students' perceptions of online learning in the health sciences education landscape.

METHOD

This study adopted an exploratory qualitative approach, utilizing in-depth semi-structured interviews to explore the perceptions of health sciences students regarding online learning. Participants were purposively selected from the Faculty of Health Sciences at an Indonesian university, representing a range of health-related disciplines. A total of 30 students participated, including five from each of the following fields: physiotherapy, nursing, medical laboratory technology, anesthesiology, nutrition, midwifery, and radiology. The study sample consisted exclusively of undergraduate students from, with participants' ages ranging between 17 and 24 years.

To analyze the data, following transcription, the in-depth semi-structured interviews were subjected to thematic analysis, supported by NVivo 14 software to assist in coding and theme development.

RESULT

Theme 1: Ease of Learning Access

Health sciences students highlighted the accessibility of online learning as a key factor contributing to their positive experiences. They appreciated the ability to access educational content and attend lectures remotely, which eliminated the need for physical attendance and provided greater flexibility. This accessibility was especially advantageous for students who were delayed or had conflicting commitments, as it enabled continued participation without significant disruption.

"I find online learning enjoyable because it's easier to access, and can access learning courses anytime. Plus, it's less rushed than with face-to-face learning, which is a barrier to distance. So, if we're late for online learning, we can just join in and participate." (Participant, Nutrition Study Program)

Participants consistently highlighted ease of access as a key advantage of online learning, contributing to a more enjoyable learning experience compared to traditional face-to-face formats. As one student noted:

"Online learning makes it easier for students to access study materials, making it more enjoyable than face-to-face learning." (Medical Laboratory Technology Student)

Another participant echoed this sentiment, emphasizing the convenience of attending lectures:

"The ease of access is definitely there, so online learning is enjoyable because it makes access to lectures easier." (Nursing Student)

These responses illustrate that the digital format not only enhances material accessibility but also supports a more flexible and less restrictive learning environment.

Theme 2: Flexible Learning Environment

In addition to ease of access, students identified flexibility as a major factor contributing to the enjoyability of online learning. Unlike traditional classroom - based instruction, which is bound by specific times and locations, online learning allows students to engage with content at their own convenience - anywhere and anytime. Participants also noted that the online environment fosters a more relaxed learning atmosphere, which they perceived as reducing stress and improving focus. One student shared:

"The learning process provides students with greater flexibility, allowing them to study anytime and anywhere, although this can be a challenge."(Physiotherapy Student)

Another participant noted that the online environment also contributed to a more comfortable and less pressured experience:

"The great thing about online learning is that it's more relaxed." (Radiology Student)

These insights underscore how the flexibility inherent in online learning not only accommodates diverse schedules and locations but also fosters a more relaxed and less rigid learning atmosphere.

Theme 3: Ease of Communication

Ease of communication emerged as a crucial factor for students in the context of online learning. The analysis revealed that effective and accessible communication was a primary reason why students perceived online learning as enjoyable, highlighting its role as a key facilitator supporting the learning process in a virtual environment. One participant noted:

"Online learning makes communication and consultations with lecturers easy; I can simply call or chat via WhatsApp." (Nutrition Student)

Another student compared this to face-to-face communication:

"In my opinion, communication with lecturers is easier compared to face-to-face interactions, which require appointments and other arrangements." (Nursing and Anesthesiology Students)

Similarly, a participant from the midwifery program highlighted the role of group chats:

"Communication is much easier because it can be done through WhatsApp, especially since lecturers are involved in group chats. If there are questions or issues to consult, they can be addressed immediately." (Midwifery Student)

These accounts illustrate how digital communication platforms enhance interaction, making consultation more accessible and immediate in the online learning context.

Theme 4: Ineffectiveness of Online Practical Course Learning

The thematic analysis revealed that students faced significant difficulties with their practical courses. In health sciences education, practical courses typically involve hands-on observation of experiments or laboratory tests, followed by analysis and conclusions based on those observations. These practical activities may involve human subjects or specific objects.

The analysis indicated that the online delivery of practical courses was perceived as ineffective in enhancing students' practical skills. This ineffectiveness was attributed to the reliance on video simulations shared by lecturers, sourced from various online platforms, rather than direct engagement with experiments. Students reported that this approach made it difficult to fully understand experimental procedures and processes, particularly for those who had no prior experience with face-to-face practical sessions. The lack of direct hands-on participation was seen as a major barrier to comprehending and following the practical activities effectively. As noted that:

"In my opinion, online learning for practical courses is ineffective because our field is practice-based. With online learning, we only watch videos and read materials, which feels insufficient. I worry that when we work directly in the community, our skills will be lacking. The theory and direct practice often differ, so online learning feels less effective." (Nutrition Student)

Similarly, a student from the Medical Laboratory Technology program highlighted the risks associated with insufficient practical training:

"The most difficult part is practical work. Just watching videos is inefficient, especially since we have to practice on humans. Without direct practice, it could be dangerous for the patients or even ourselves because we haven't had hands-on experience." (Medical Laboratory Technology Student)

These reflections illustrate students' concerns about the inadequacy of online practical training in preparing them for real-world clinical tasks, underscoring the importance of hands-on learning in health sciences education.

Moreover, the limited availability of simulation videos during practical course sessions constitutes an additional challenge that hinders the effectiveness of online learning for health sciences students. Participants also reported that the simulation videos provided for online practical courses were limited in number, typically consisting of only one or two videos per practicum topic. This scarcity was perceived as insufficient to offer a comprehensive practical learning experience, restricting students' exposure and understanding.

One participant noted:
"The online practicum videos mostly come from YouTube, and sometimes the material lacks depth and variety. There are usually only one or two videos available, which limits our references." (Nursing and Medical Laboratory Technology Students)

Similarly, another student expressed difficulties in finding additional resources:
"Sometimes, for certain practicum topics, there is only one or two videos, and it's hard to find more videos on the internet, making it difficult to access a wide range of references during practicum." (Physiotherapy Students)

These findings highlight the need for more diverse and comprehensive digital resources to enrich the online practical learning experience.

DISCUSSION

This exploratory study examines students' perceptions of their experiences with online learning. The results reveal that learners generally hold favorable views toward e-learning, attributing this to several key factors: the accessibility of learning materials, the flexibility afforded by the online learning environment, and the ease of communication with instructors. The ability to engage with course content remotely, without the necessity of physical presence, was particularly valued. Moreover, students reported that virtual platforms facilitated more convenient and effective interactions with their instructors, thereby enhancing the overall learning experience. These findings are consistent with the work of Giday & Perumal (2024) dan Zhang et al., (2023) who reported that a majority of students (over 50%) identified convenience as the most significant advantage of online learning, particularly highlighting its flexibility and the integration of multimedia-rich content. However, the study also noted a decline in perceived learning efficiency as a prominent limitation. Contributing factors included digital eye strain, unreliable internet connectivity, and suboptimal home learning environments, all of which were cited as common barriers to effective online learning (Zhang et al., 2023).

Table 1: Summary of Key Themes and Supporting Quoted

Theme	Participant
Ease of Learning Access	"*Online learning makes it easier for students to access study materials, making it more enjoyable than face-to-face learning*"
Flexible Learning Environment	*"The learning process provides students with greater flexibility, allowing them to study anytime and anywhere, although this can be a challenge"*
Ease of Communication	*"Online learning makes communication and consultations with lecturers easy; I can simply call or chat via WhatsApp"*
Ineffectiveness of Online Practical Course Learning	*"The online practicum videos mostly come from YouTube, and sometimes the material lacks depth and variety. There are usually only one or two videos available, which limits our references".*

Furthermore, the drawback concern in Theme 4 above also aligns with this current findings, which indicating that, despite the perceived benefits of online learning, students in health sciences disciplines face significant challenges in engaging with practical coursework. Given the inherently hands-on nature of health sciences education, majority of participants reported that online learning was ineffective for acquiring practical skills, particularly due to limited access to essential medical tools and limited learning content and equipment necessary for experiential learning and clinical observation.

For students in the health sciences context, the integration of theoretical knowledge and practical skills (such as laboratory work, pre-clinical, or clinical practice) represents two interdependent aspects that cannot be separated. Both components significantly influence students' learning experiences and perceptions. A study conducted at the Pharmacy Program of King Khalid University in Saudi Arabia revealed that 76% of pharmacy students preferred face-to-face learning over online

formats. This preference was attributed to the nature of core subjects such as pharmaceutical microbiology, pharmacognosy, and pharmaceutical terminology, which require in-person instruction (Almaghaslah et al., 2018).

Moreover, in nursing and midwifery context, students expressed moderate satisfaction with online learning modalities, substantial challenges were reported regarding effective knowledge and skill acquisition, as well as impediments to the overall learning process; Participants conveyed a diminished sense of preparedness for clinical practice, attributing this in part to the limited capacity of clinical staff to offer supplementary guidance and support due to heightened workloads and pandemic-related stress (Jones et al., 2024; Moustafa Elpasiony et al., 2021; Siah et al., 2022; Tarek Mahmoud et al., 2023). Furthermore, a thematic analysis uncovered a complex spectrum of health student experiences, underscoring key challenges including pervasive difficulties and limited opportunities for practical skill development among clinical-year students, this contributing to elevated stress and diminished academic motivation about health students (Almansour et al., 2024; Alrajaby, 2024; Fatimi et al., 2025; Lin et al., 2021).

To address the drawback above, this study found some recommendations from the students. Students stated that when conducted online, e-learning should incorporate the following components: (1) students independently conduct examinations or experiments based on guidelines, instructions, or simulations provided by the instructor, either through synchronous or asynchronous learning modalities; (2) students engage in discussions of specific clinical cases and explain appropriate diagnostic or procedural approaches; and (3) students analyze real-world disease cases from particular hospitals. Moreover, students emphasized the importance of integrating case studies and disease problems derived from recent research findings into the learning process. This approach is seen as essential for broadening knowledge and enhancing students' practical skills. As Franklin et al., (2021) similarly argued that students in health-related disciplines tend to prefer "real" clinical cases over pre-designed or artificial scenarios, as they offer more authentic and meaningful learning experiences.

Take together, while the findings of this study indicate that students generally hold positive perceptions of online learning, particularly with respect to the accessibility of learning materials, flexibility, and ease of communication with instructors. However, several limitations must be acknowledged that may impact the internal validity and transferability of these results. While the convenience of access and virtual interaction was valued, challenges such as digital eye strain due to prolonged screen exposure, unstable internet connectivity, and suboptimal home learning environments were reported to impede learning effectiveness (Zhang et al., 2023). These factors suggest that the positive experiences were not uniformly experienced across the sample, thereby necessitating a cautious interpretation of the findings. Moreover, given that this study was conducted within a limited contextual and demographic scope, the generalizability of the results to other online learning settings remains constrained. Accordingly, it is imperative to reflect upon these limitations to contextualize the findings appropriately, recognizing that although the study affirms the advantages of e-learning, substantive challenges persist that must be addressed to enhance the applicability of these findings across broader educational contexts.

CONCLUSION

The findings of this study underscore several key factors influencing health science students' positive perceptions of online learning, including ease of access, flexibility of the learning environment, and ease of communication. Nonetheless, given the predominantly practice-based nature of health sciences education, online learning is best positioned as a complementary modality rather than a full replacement for

traditional face-to-face instruction.

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