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## Students' perspectives of E-learning utilization in medical students: A qualitative study at the University of Medicine and Pharmacy at Ho Chi Minh City

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## ABSTRACT

**Introduction**: The global landscape of medical education has been profoundly transformed by the COVID-19 pandemic. E-learning plays a significant role in promoting students' self-directed learning. However, end-of-course surveys have indicated that students do not perceive e-learning to be as beneficial as anticipated. The current study explores e-learning utilization and the challenges impeding its effectiveness, highlighting the difficulties encountered by students during their initial experiences.

**Methods**: A qualitative study was conducted in the academic year–2022-2023 at the Faculty of Medicine, University of Medicine and Pharmacy at Ho Chi Minh City (UMP). Sixteen students from years 3 to 5 participated in the interviews.

**Results:** The findings revealed three themes: (1) the inadequacy of e-learning functions to support learning activities, (2) barriers preventing students from increasing e-learning usage for learning activities, and (3) recommendations for maximizing the utilization of e-learning platforms.

**Discussion and conclusions:** To fully harness the e-learning potential, it is crucial to address the challenges faced by students and continuously improve the platform based on their feedback. This could involve expanding access to digital resources and developing new features tailored to different educational stages and disciplines. Addressing these issues can render e-learning a robust and effective tool for enhancing educational outcomes.

Key words: Elearning, Teaching and learning, Selfdirected learning, Online learning

## **INTRODUCTION**

Medical education is imperative for the cultivation of proficient healthcare professionals and advancement of medical knowledge<sup>1,2</sup>. E-learning has evolved significantly over the last two decades and has emerged as a revolutionary method that enhances accessibility, cost efficiency, and interactive teaching practices in medical education<sup>3-5</sup>. As a subset of digital education, e-learning encompasses the acquisition of knowledge through information technology and has progressively permeated the realm of medical education. E-learning, which is primarily integrated into fundamental medical science courses rather than clinical training, has been combined with traditional teaching approaches, resulting in blended learning formats<sup>6,7</sup>. Effective implementation of e-learning in medical education requires a diverse array of resources ranging from the availability of electronic devices and Internet connectivity to suitable pedagogical strategies and proficient technological support<sup>4,8,9</sup>. Moreover, the presence of on-campus and off-campus infrastructures is pivotal for the successful deployment of e-learning initiatives. Online learning management systems, exemplified by platforms such as Moodle, have been customized to serve as conduits for course delivery, thereby enriching overall teaching and learning encounters<sup>10,11</sup>.

The landscape of medical education on a global scale has been profoundly reshaped by the advent of the COVID-19 pandemic, compelling emergency medical institutions to transition swiftly to online pedagogical approaches. Noteworthy challenges in implementing e-learning include issues such as substandard network quality, inadequate internet connectivity, deficient digital competencies among IT personnel, and students' limited experience<sup>12,13</sup>. Despite the aforementioned obstacles, e-learning significantly contributes to fostering active and self-directed learning among students, while assisting faculty members in managing and monitoring students' academic progress<sup>14–17</sup>. This mode of learning also facilitates the dissemination of and accessibility to educational resources.

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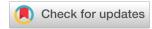
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Since 2016, UMP has used e-learning along with basic medical education programs to support teaching and learning. However, end-of-course surveys revealed that students did not find e-learning as useful as expected. This study explored e-learning usage and the challenges preventing its effectiveness, highlighting the difficulties faced by students during their initial online learning experiences.

## **METHODS**

### **Research design**

This study employed a qualitative research approach to deeply explore students' experiences with elearning and gather their recommendations for enhancing its effectiveness in supporting academic learning at the University of Medical Practice (UMP). Specifically, an exploratory phenomenological study design was chosen, as it allows for an in-depth investigation of lived experiences and the meaning participants attribute to those experiences. This approach was particularly suitable for understanding the nuanced ways in which e-learning platforms facilitate or hinder students' educational journeys. The study was conducted over the 2022-2023 academic year within the Faculty of Medicine at UMP.

To recruit participants, a broad and inclusive outreach strategy was implemented. An online introduction to the study was prepared, detailing the research objectives, the nature of participation, and the ethical safeguards in place, including confidentiality and voluntary participation. This invitation was disseminated to all students across the Faculty of Medicine through the university's official communication channels, including email and the student portal. Students who expressed interest were invited to engage in semistructured interviews with members of the research team.

#### **Data collection**

In-depth semi-structured interviews and focus group discussions were conducted to collect data from participants. Online consent forms were provided before participating in interviews and discussions. The guiding questions for the interviews were based on previous studies and feedback from students at UMP. The questions explored participants' current practices with e-learning platforms, their drivers and barriers, and their recommendations to improve users' experiences when using e-learning for learning activities. All interviews were conducted at the UMP, with durations varying from 20 to 45 minutes.

Permission for audio recordings was obtained before each interview. There was no attempt to convince the participants to give their permission to record in order to avoid suspicion of how the results of the interview might be used. The interview notes were taken, transcribed, and analyzed via content analysis. Direct quotes from the participants ensured reliability.

### **Sampling methods**

In the context of this study, the sampling strategy was designed to include students from a variety of academic disciplines and different years of training. The objective was to capture diverse experiences and perspectives regarding the use of the e-learning platform, as students at different stages in their academic journey may have distinct interactions with and expectations from the system. Despite these efforts, the final sample included only students from Years 3 to 5, as they were the only volunteers who agreed to participate in the study.

The determination of an appropriate sample size is a critical consideration in qualitative research, as the goal is not to achieve statistical generalizability to a broader population but rather to uncover specific insights and emerging themes relevant to the study context. One widely accepted principle in qualitative research is that of "data saturation." This concept refers to the point at which additional data collection yields no new or significant insights, indicating that the sample is sufficiently comprehensive to address the research questions.

In this study, the principle of data saturation guided the determination of the final sample size. During the data collection process, it became evident that the responses from participants were increasingly repetitive, with no novel information emerging from additional interviews. This observation aligned with the principle of sampling adequacy, which ensures that the data collected is sufficient to capture the breadth and depth of the phenomena under investigation. As a result, the final sample comprised 16 participants, which was deemed appropriate to meet the study's objectives and to achieve a nuanced understanding of the themes under exploration.

By adhering to the principle of data saturation and systematically evaluating the adequacy of the sample, this study ensured the robustness of its qualitative findings. This methodological rigor enhances the credibility and transferability of the insights generated, providing a solid foundation for interpreting the complexities of e-learning platform usage among the student population.

#### **Data analysis**

The qualitative data collected from the 16 recorded interviews were systematically analyzed using a thematic analysis framework. This approach was selected due to its suitability for identifying, analyzing, and interpreting patterns of meaning (themes) within qualitative datasets. The analysis aimed to provide a structured and comprehensive understanding of the participants' experiences and perspectives related to elearning.

The first step in the data analysis process involved transcription verification to ensure the accuracy and completeness of the interview transcripts. Each audio recording was meticulously transcribed, and the transcripts were cross-checked against the original recordings to eliminate potential errors or omissions. This step was crucial for preserving the integrity of the data and establishing a reliable foundation for subsequent analysis.

Following transcription verification, inductive and comparative analyses were employed. The inductive approach allowed themes to emerge directly from the data, without being constrained by preconceived notions or theoretical frameworks. Comparative analysis involved examining the transcripts for similarities and differences across participants' responses, facilitating the identification of recurring patterns.

The coding process was carried out in two stages: open coding and focused coding. During open coding, the transcripts were examined line by line to identify and label meaningful segments of data. These codes represented discrete concepts or ideas shared by the participants. In the subsequent stage of focused coding, related codes were grouped into broader categories based on conceptual similarities. This iterative process of grouping and refining codes was instrumental in generating initial subthemes and themes. To ensure the robustness of the thematic analysis, the researchers employed a dynamic, iterative approach, moving back and forth between the transcripts, codes, and emerging themes. This reflexive process allowed for the constant refinement and validation of the categories and themes, ensuring that all relevant data were accurately represented. Themes and subthemes were further consolidated and defined by establishing conceptual linkages and hierarchies, providing a coherent framework for interpretation.

The analysis was deemed complete when the themes and subthemes comprehensively captured the key aspects of the participants' narratives and no new themes emerged. This "saturation" ensured that the analysis was both exhaustive and reflective of the full breadth of the data. The final set of themes and subthemes were presented in a structured manner, accompanied by representative quotations from the participants to provide contextual depth and enhance the validity of the findings.

#### **Ethical considerations**

This study was approved by the IRB of the University of Medicine and Pharmacy under Decision No. 552/HĐĐĐ-ĐHYD on February 06<sup>th</sup>, 2022, and applicable guidelines for research with human subjects were followed.

## RESULTS

## **Characteristics of participants**

A total of sixteen students from years 3 to 5 participated in this study, engaging in both individual interviews and group discussions. The participants were strategically organized into three discussion groups, each consisting of two to four students. This group arrangement was designed to encourage open dialogue and diverse perspectives while maintaining an intimate setting conducive to meaningful discussion.

At the time of their participation, the students were enrolled in various modules across their curriculum, including Family Medicine, General Surgery, Tropical Diseases, Oncology, and Pediatrics. These modules represent a range of medical disciplines and provide a broad context for their academic and clinical experiences with the e-learning platform.

Additionally, all participants were actively involved in clinical training during the study period. Their clinical placements spanned multiple settings, including hospitals and community health centers, providing them with firsthand exposure to the practical application of their academic learning. This dual engagement in academic modules and clinical training enriched the data by reflecting the diverse and multifaceted ways in which e-learning was integrated into their educational journey.

## **Results from interviews**

During the interviews, the participants were asked about their experience of using e-learning in the learning process. Their responses provided insights into how e-learning platforms are currently being used by students. The participants were then asked to discuss the benefits and challenges of using elearning, which helped identify various issues that hinder the effective use of e-learning platforms. Finally, the participants were invited to offer recommendations for optimizing the use of e-learning. The analysis revealed three main themes that are presented in the following section, accompanied by quotations from participants. We labeled S- for students' excerpts.

## Theme 1: The inadequacy of e-learning functions to support learning activities

Based on the students' opinions, e-learning is primarily a repository of learning materials for downloading documents, watching videos, and reading references posted by faculty members. They also used it for pretests and posttests, curriculum information, schedules, and faculty information. Usage is greater in the first- and second-years during theory courses and decreases during clinical training as their elaboration "The slides are only for theory courses. For practice courses such as General Internal Medicine or General Surgery, the faculty do not send many references, only some minor ones" (S01). Students also accessed class video recordings and clinical skills videos through elearning. Despite barriers and challenges, most students found e-learning helpful for their studies when emphasizing that "We used e-learning very often, almost every day, to download materials for preparation before going to class." (S03); and "E-learning has supported a lot when we study at school." (S04). Although one advantage of e-learning is that it encourages active learning for students, it does not ef-

fectively support student–faculty or student interactions. Many interviewees were unaware of the forum section and those who knew about it were reluctant to use it because of concerns about anonymity and confidence.

"Since it's not anonymous, I'm afraid my questions are silly, and friends may laugh at me that I asked such questions." (S05); or:

"I am not confident and quite shy to ask questions online on the forum." (S08); or:

"I'm not comfortable that all friends see my name and my class when I post my questions on the forum." (S13)

## Theme 2: Barriers preventing students from increasing e-Learning usage for learning activities

The E-learning platform is perceived as not userfriendly because of the complexity and repetitiveness of the steps required to upload files and create quizzes or tests, even with pre-tests and post-tests.

"It takes steps to go to the modules that I want to download the materials... I also need to return to the homepage to search for modules. I could not choose my priority on the course list, so I just searched again and again' (S12).

"In some cases, I was 'thrown back' to the homepage when searching for a course in my year and many steps to follow before I could watch the class recording. Sometimes, I could not download slides. That function was disabled or broken... I do not know..." (S15).

The students expressed frustration with e-learning because of platform instability. Many participants shared similar experiences regarding this issue.

"I logged in and downloaded all the materials at the beginning of the school year. Some of my friends, close to the examination day, could not log into elearning and had to ask for material. E-learning is not always stable, especially when many people are logging in at the same time." (S03)

"Sometimes, we could not load pre-test questions or move to the next ones. The platform was loaded, and we ran out of time. I once had to screenshot the pretest page, and some friends recorded the loading page. We sent these to the course moderator or the training office staff. Once, we had to retake the test because none of the responses were recorded." (S14)

"I remember some friends posted screenshots of their inability to load the pretest in our group, and the training office staff had to contact the course faculty. We used Google Forms for the pretest." (S16)

Students reported difficulties due to outdated materials on the e-learning platform, causing confusion during classroom lessons: "The faculty do not update their slides on e-learning. They only use documents from previous years." (S02); or "The materials from the Gastrointestinal module are quite updated, but not all the slides are. The nutrition module was the same as that used in previous years. The faculty used slides uploaded in 2018." (S05). Some students expressed their frustration as follows:' It is difficult for me to follow the lesson since the materials are different... As a class committee member, I must contact the faculty to ask for updated slides and share them with our class. Some faculty forget, and I need to remind them... I am quite tired of following up with the faculty about the updated slides." (S01).

One issue raised by students is the limited accessibility of documents from their previous training years. For example, Year 4 students were unable to access Year 3 materials, which is problematic for Year 6 students preparing for graduation examinations. One student mentioned, "I need to download and keep all the documents for each year because I cannot access the slides from Year 2 when I am in Year 3. Sometimes, I get tired of asking junior students for slides from my previous training years" (S01). Another student added, "These days, I see some Year 6 seniors asking about slides from Year 1 to prepare for their examinations. If we could access materials from previous years and find updated slides, it would be helpful. We would not need to look for these materials everywhere" (S15). Many students revealed that they tend to use other social media, such as Zalo or email, instead of e-learning forums for study-related exchanges, because of their convenience and widespread adoption.

"E-learning is not as fast or convenient as Zalo... it's also not widely used, so most faculty do not use it, which results in no responses for us." (S01); or

"I use Zalo messages. Only a few Faculty members send materials via email, and most of the communication occurs through Zalo. Zalo also allows for document sharing and easy storage." (S02); or

"Currently, checking emails is an almost daily practice. Thus, when we reach out to instructors via email and receive a response, we receive an instant notification. This makes responses to our emails faster than checking on the e-learning forum." (S08).

## Theme 3: Recommendations for maximizing the utilization of e-learning platforms.

Students emphasized that increasing the frequent use of e-learning is very important to encouraging elearning usage as mention 'if the faculty of other courses ask us and encourage us to use e-learning similar to the faculty of biostatistics, then we know the faculty care about that. Students will follow. Otherwise, we rarely use e-learning' (S03). Another student mentioned, "I think there should be pioneers... If some are using the forum and the school encourages students to post questions on the forum, I will post my questions, particularly when reviewing materials to prepare for examinations" (S04).

To improve e-learning for students, a stable network and infrastructure are crucial to avoid disruptions in learning and exams. Some students complained about network issues during the examination because the platform was overloaded by the number of users accessing it. Stability ensures fair pre-tests and prevents course retakes caused by loading failures.

The interviewees suggested an anonymous mode in the E-learning Forum to increase students' confidence when asking questions without worrying about judgment from peers or faculty.

"I think the option to ask questions anonymously is good." (S02)

"I believe anonymity would be beneficial because some students feel shy, and sometimes the questions may seem silly." (S03)

## DISCUSSION

Our findings showed that most students agreed that e-learning supports learning in medical education, which aligns with other studies<sup>17,18</sup>. E-learning's role as an official forum for student–faculty exchanges is underutilized because students find it less effective than email or social media. Students often prefer direct messaging for queries because of the lack of anonymity in the forum. They value e-learning most as an "online library" for downloading materials. The forum is crucial for fostering academic connections, especially during lockdowns when direct contact is minimized<sup>19</sup>.

A major barrier is the lack of essential features such as user monitoring for self-study, tools for practical assessments, and the complexity of uploading exams. E-learning has not facilitated student-faculty exchanges, as expected, leading to frustration. Similar to previous findings, system instability, including frequent crashes and slow response times, hinders high-stakes assessments, further limiting the utility of e-learning<sup>20,21 20,21</sup>. Our study did not assess student autonomy in self-directed learning. Although students are tech-savvy, their use of e-learning for self-directed learning is not widespread, possibly because of a lack of training and encouragement. In a study by Alioon et al., students stated that online learning platforms are helpful for active and selfdirected learning<sup>22</sup>. The absence of a unified policy to guide and manage e-learning exacerbates these issues<sup>21</sup>. Modules requiring practical hands-on learning, such as clinical evaluations, are particularly disadvantaged as current e-learning features primarily support preclinical stages with lectures and theoretical assessments. However, the blended learning approach has been shown to be beneficial in improving medical students' clinical practice and enhancing their active learning<sup>23</sup>.

To enhance e-learning, comprehensive regulations, policies, and mandatory requirements should be implemented to increase its adoption during the learning process. Additional features should address specific needs, especially for formal student–faculty communication channels, as active interactions between students and faculty encourage users to access the platform. Stabilizing the school's server and Internet systems is crucial for a seamless e-learning experience. Regular maintenance and upgrades are essential to meet the increasing demand. Tracking module time, logins, and task completion along with regular learning-based assessments can encourage active participation and self-directed learning. Our findings align with those of other studies that emphasize comprehensive approaches to enhance e-learning effectiveness, including adequate training, robust support, and tailored features. Addressing these factors can create a robust e-learning environment, leading to improved educational outcomes  $^{24-26}$ .

These three themes reveal that, while e-learning has the potential to revolutionize education, several barriers must be addressed to maximize its effectiveness. The students expressed dissatisfaction in various aspects. To fully harness this potential, it is crucial to address these challenges and continuously improve the platform based on feedback. This could involve expanding access to digital resources and developing new features tailored to various educational stages and disciplines. Addressing these issues can make elearning a robust and effective tool to enhance educational outcomes.

### Limitations

This study, which was conducted at a medical university in Vietnam, used a convenience sample, limiting its generalizability. Although practical, this method may not accurately represent a broader population, leading to a potential bias. Future research should employ more rigorous sampling methods to enhance validity and reliability. Future work could explore the integration of e-learning into training and assessment in medical education by blending it with traditional methods to create a hybrid environment. Additionally, studies should investigate the long-term impacts of e-learning on student performance, engagement, and satisfaction to better leverage e-learning to improve educational outcomes.

## CONCLUSIONS

Medical educators should continue to explore innovative approaches for training medical students through e-learning. Ensuring the quality of online education is crucial, especially during crises when reliance on digital platforms increases. This involves all aspects of the online learning environment and stakeholders. This study offers comprehensive recommendations for educators, institutions, and evaluators, addressing key areas such as network infrastructure capacity, technological proficiency, and effective teaching and learning activities. Educators and institutions can implement successful online learning initiatives by considering these factors.

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## **COMPETING INTERESTS**

The authors declare that they have no competing interests.

## **AUTHORS' CONTRIBUTIONS**

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## Góc nhìn của sinh viên y khoa về việc ứng dụng e-learning: Nghiên cứu định tính tại Đại học Y Dược Thành phố Hồ Chí Minh

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## TÓM TẮT

Đặt vấn đề: Bối cảnh giáo dục y khoa toàn cầu đã thay đổi sâu sắc dưới tác động của đại dịch COVID-19. E-learning đóng vai trò quan trọng trong việc thúc đẩy khả năng tự học của sinh viên. Tuy nhiên, các khảo sát cuối khóa học cho thấy sinh viên không đánh giá cao hiệu quả của e-learning như kỳ vọng. Nghiên cứu hiện tại nhằm tìm hiểu việc ứng dụng e-learning và các rào cản ảnh hưởng đến hiệu quả của hình thức này, đồng thời làm rõ những khó khăn sinh viên gặp phải trong giai đoạn đầu tiếp cận.

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Kết quả: Phân tích dữ liệu cho thấy ba chủ đề chính: (1) các chức năng của e-learning chưa đáp ứng được nhu cầu hỗ trợ hoạt động học tập, (2) những rào cản khiến sinh viên chưa thể tăng cường sử dụng e-learning trong học tập, và (3) các đề xuất nhằm tối ưu hóa việc khai thác nền tảng e-learning.

Thảo luận và kết luận: Để khai thác tối đa tiềm năng của e-learning, cần giải quyết các thách thức mà sinh viên đang gặp phải và liên tục cải tiến nền tảng dựa trên phản hồi của họ. Các biện pháp có thể bao gồm mở rộng quyền truy cập vào các tài nguyên số và phát triển các tính năng mới phù hợp với từng giai đoạn và lĩnh vực đào tạo. Việc giải quyết những vấn đề này có thể giúp e-learning trở thành một công cụ hiệu quả và bền vững nhằm nâng cao chất lượng đào tạo. Từ khoá: E-learning, Dạy và học, Tự học, Học trực tuyến.

Trích dẫn bài báo này: Tân N T M, Tuấn L H, Tâm T K, Linh M T L, Tú D T, Thành T V, Quỳnh H T V. Góc nhìn của sinh viên y khoa về việc ứng dụng e-learning: Nghiên cứu định tính tại Đại học Y Dược Thành phố Hồ Chí Minh. *Sci. Tech. Dev. J. - Health Sci.* 2025; 6(1):732-739.