AN IN-DEPTH ANALYSIS OF MEDICAL STUDENTS' CULTURE AND PERSPECTIVES ON E-LEARNING IN HONG KONG.

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ABSTRACT

An excellent instance of how the worldwide use of digital technology has revolutionised medical education is present in Hong Kong. Medical students' views on e-learning may be easiest to comprehend in this environment due to its high population density, multilingual academic climate and focus on technology-driven education. The perspectives and behaviours of medical students in relation to online education are investigated in this research by exploring the impact of factors such as accessibility, learning attitudes, collaborative learning culture and institutional support. With 558 valid responses from medical students, the survey utilised a quantitative technique and stratified sampling to ensure equal representation across various academic and occupational categories. The results show that the effectiveness of online education is highly dependent on the durability of a culture of collaborative learning. E-learning proved to be adaptable, engaging and satisfying for students who participated in collaborative projects, debates, and problem-solving with their peers. Inadequate institutional structures to facilitate group-based learning, unequal levels of involvement and an ongoing emphasis on exam-oriented evaluation which discourages cooperation are among the ongoing problems highlighted by the study. Further obstacles to better e-learning results include inadequately built platforms for collaboration and insufficient institutional funding. The study concludes that the effective implementation of e-learning methods in Hong Kong's medical education sector depends largely on a culture of collaborative learning. This study aims to establish accessible and sustainable online education models for medical students in Hong Kong by arguing for better institutional support, interactive platforms and blended methods that mix conventional teaching with digital collaboration.

Keywords: Collaborative learning culture; e-learning; medical education; Hong Kong; medical students’ perspectives.

INTRODUCTION

The global transition from traditional physical education to online learning was abrupt and remarkable in the wake of the 2019 Coronavirus Disease (COVID-19) epidemic. Given this situation, it appears obvious that within the framework of modern education, e-learning must be encouraged. The use of e-learning platforms allows for the remote delivery of detailed courses at the student's convenience. Students will then have the opportunity to participate in

guided live chats utilising audio and video conferencing at certain periods. Students who actively participate in their online learning achieve excellent outcomes. The ability to learn independently and continuously is a skill essential in medicine, and this was considered crucial to fostering that quality. Students who have recently finished this kind of program may be better prepared to deal with electronic health records and provide medical treatment via telehealth, according to proponents of this approach (Regmi & Jones, 2020). In the last 20 years, Hong Kong has been a forerunner in promoting e-learning. Since the beginning of more advanced hardware, the focus of e-learning has shifted from the technology itself to its potential applications in the medical field. The purpose of e-learning is to encourage lifelong learning by making education more convenient, engaging and customised for each student. It also seeks to develop students' abilities for self-directed learning and simplify the integration of technology into education. Diagnostic and therapeutic technological advances are evolving as more and more important to contemporary medicine and the training of future doctors (Alsoufi et al., 2020). Electronic media and devices are the basis of electronic learning, which goes by a number of names, including digital learning, mobile learning and e-learning. These days, it is not unusual for students to use their phones, iPads and laptops in class to supplement their study time. Accessibility, instructional methods, course content and assessment tools are some of the elements that determine the likelihood of a successful or unsuccessful online course. E-learning has several benefits such as the flexibility to study whenever and wherever they choose and the fact that it is quite convenient. Most schools in developed countries have started offering online classes but institutions in impoverished nations rarely have sufficient funds to completely embrace e-learning (Syed et al., 2021).

BACKGROUND OF THE STUDY

E-learning has been growing in popularity in recent decades as a consequence of a change in how individuals' study and achieve degrees. Through the use of various kinds of electronic media and technology, e-learning allows for the engagement of both teachers and students. Around the same period, online education began to gain popularity as a way for students to keep studying even after classes ended. There was a period when students in Hong Kong could only study via the traditional classroom method. Due to its increasing use in medical schools, e-learning's effectiveness has lately drawn increasing scholarly criticism. The ability of students to achieve excellent educational results is dependent on this. Hence, it is considered significant. Even before the epidemic began, many were concerned about the global shortage of medical education. Due to the high demand for medical services during the pandemic, several medical students had to temporarily suspend their plans to become teachers to focus on providing treatment to patients (Zarei & Mohammadi, 2022). Work and research are worsening the shortage of resources for medical educators. Therefore, an increasing number of medical schools are offering their courses online. Even though e-learning has been around for a while, it is still regarded as a supplement to traditional classroom instruction. The unplanned suspension of classes led to an extensive study that challenged the abilities of both students and teachers to use e-learning. Perhaps the new teaching paradigm will benefit from some of

these concepts. Due to this new normal, e-learning is essential. In order to encourage the ongoing growth of e-learning, it is essential to review its achievements and shortcomings. Therefore, this study aims to find out how online education is now implemented in schools, what students and teachers think about it, as well as whether society in Hong Kong has the infrastructure to support e-learning (Fung, 2024).

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PURPOSE OF THE RESEARCH

An in-depth analysis of Hong Kong's medical students' attitudes and practices about online education is the study's main purpose. In the competitive and demanding world of medical education, this study aims to shed light on the primary obstacles faced by institutions and individuals in this sector including variables like digital literacy, learning culture, accessibility and usefulness. To determine the subject's association, the study examined technical preparedness, learning attitudes, self-discipline and other pertinent characteristics. The study zeroed out on characteristics unique to the Hong Kong school system such as its concentration on technology, bilingual education, and cultural norms because these elements set it apart from other regional education systems. Additionally, the research examined the undeveloped parts of e-learning that may be modified to make it beneficial for medical students and their educational techniques. This research intends to more effectively prepare students for clinical practice, digital healthcare technologies and lifelong learning in a dynamic medical environment by identifying gaps and possibilities in medical education. By accomplishing so, it intends to stimulate continuous innovation in medical education. The results of this research may help medical school faculty, students and policymakers in Hong Kong enhance the quality of online medical education by developing more efficient technological learning methods.

LITERATURE REVIEW

Recent investigations in medical education have focused on designing and assessing e-learning instruments with a perspective towards these resources' potential to change the industry. A handful of Hong Kong academics examined e-learning concentrating on the opportunities and challenges that students encounter. Nevertheless, there is still a lack of comprehensive knowledge about Chinese students' use of the internet due to the brief history of e-learning

education in Hong Kong (Jin et al., 2021). While some consider e-learning a revolutionary breakthrough, others view it more as an advertising stunt. Additionally, factors that are not directly related to e-learning but still affect students' e-learning behaviour include their evaluation orientation, concerns about their physical health and privacy worries (Venkatesh et al., 2020). Furthermore, modern medical students are more technologically proficient than their predecessors since they grew up with smartphones and laptops. Many contemporary medical instructors have not begun to utilise computers until much later in their careers. As a result, they normally have no idea which internet resources to use or how to tailor them to meet their exact educational goals. Teachers may find it more difficult to completely and successfully use e-learning technologies (Alhumaid et al., 2020). According to the findings of the Future Health Index 2020, medical technology plays a significant role in motivating the healthcare workforce of the future. It emphasises the importance of teaching the next generation to utilise most of the data and technology (Puaschunder, 2020). Researchers conducted a thorough review of research on the scope and impact of online education on future doctors. While there are several formats of online education utilised in healthcare, the authors found that case-based learning, quizzes, question banks and multimedia were the most common. Based on the results, medical students would benefit most from using animated movies and contemporary artwork as course materials (Delungahawatta et al., 2022). Additionally, Collaborative learning is well-suited to the delivery of medical education because it promotes involved engagement which enhances understanding and retention of complicated medical ideas eventually leading to the achievement of learning objectives. Critical thinking and decision-making capabilities are significantly improved when students participate in collaborative discussions and work together to solve problems. Collaborating with classmates from different cultural backgrounds improves students' cultural awareness and broadens their worldview (Lacaste et al., 2022). While prosperous participation has the potential to facilitate many e-learning issues, difficulties such as insufficient input and lack of contact in virtual classrooms continue. Both students and instructors felt unprepared for the sudden shift to e-learning. Therefore, there ought to be organisational backing and an increase in e-learning procedures (Osadcha et al., 2021).

RESEARCH QUESTIONS

What is the role of collaborative learning culture in e-learning in Hong Kong?

RESEARCH METHODOLOGY

Research Design

To assess the culture and concepts around online education among medical students in Hong Kong, this study used the quantitative research approach. The data was analysed by the researcher using SPSS version 25. Incorporating demographic and project-related data, the researcher has used descriptive statistics. To determine the nature and scope of the associations, the researcher used inferential statistics, such as probability ratios with 95%

confidence intervals. Statistical significance was defined as a p-value below 0.05. Using analysis of variance and component analysis, the researcher was able to verify the data and identify groups that differed significantly.

Sampling

The researcher employed stratified sampling to gather data for the study. Research requires 516 individuals in total according to RaoSoft's sample size projection. As a means of reducing the rate of non-response, the researcher distributed the 650 questionnaires among strata. Following completion, 589 questionnaires were returned to the researcher. 32 had incomplete or incorrect replies, bringing the total to 558 valid responses.

Data and Measurement

The primary method of collecting data was via the use of structured questionnaire surveys. Part one of the survey enquired about respondents' demographics and professions while part two used a five-point Likert scale to assess their thoughts on several project management issues. Each kind of project and every kind of function was accurately represented because of stratified sampling. Journal articles, organisational documents and internet databases made up the majority of the study's secondary data.

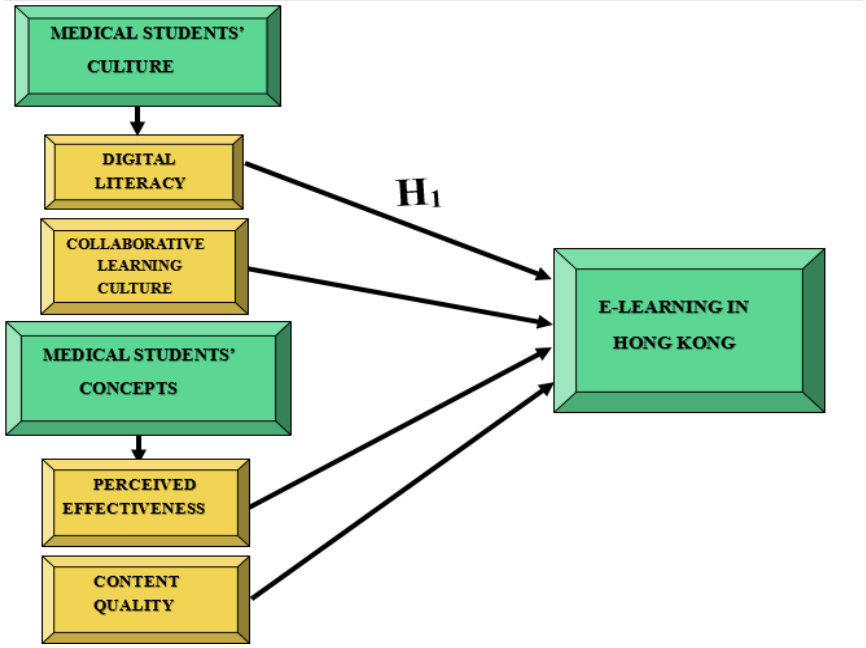
Statistical Software

The researcher used Microsoft Excel and SPSS 25 to perform statistical analysis.

Statistical Tools

Demographic and project-related factors across multiple strata have been explained using descriptive analysis. An example of an inductive statistical approach would be the researcher's use of 95% CIs on odds ratios, analysis of variance (ANOVA) for group comparisons and factor analysis for measurement reliability and theoretical validation.

CONCEPTUAL FRAMEWORK



RESULT

Factor Analysis: Finding latent features in accessible data is the goal of Factor Analysis (FA). When plain visual or clinical indicators are not accessible, regression results are often used for evaluations. Finding vulnerabilities, violations, and potential observable links is what simulation is all about. A number of regression studies collect data, which are then evaluated using the Kaiser-Meyer-Olkin (KMO) test. Estimates based on the mathematical model and its sample variables have been shown to be accurate. Possible occurrence of duplicates might be uncovered by the data. Making information more apparent is achieved by reducing the proportions. In order to aid the investigator, KMO gives them a number between zero and one. A KMO value between 0.8 and 1 indicates a sufficient sample population. The following are the ranges that, according to Kaiser, are acceptable: The following are the certification standards that Kaiser has established: Disgraceful, falling between 0.050 and 0.059, far lower than the normal range of 0.60 to 0.69. Middle grade often falls between 0.70 and 0.79. A score ranging from 0.80 to 0.89 on the quality scale. They find the range from 0.90 to 1.00 to be remarkable.

The results of Bartlett's test of Sphericity are as follows:

approx. chi-square = 3252.968

df = 190

sig =.000

Table 1. Testing for KMO and Bartlett's Sampling Adequacy Measured by Kaiser-Meyer-Olkin 0.884.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.884
Bartlett's Test of Sphericity	Approx. Chi-Square	3252.968
	df	190
	Sig.	.000

Essentially, this allows claims that have to do with sampling. The significance of the correlation matrices has been assessed using Bartlett's Test of Sphericity. At 0.884, the Kaiser-Meyer-Olkin statistic indicates that the sample size is adequate. When doing Bartlett's Sphericity test, a p-value of 0.00 appears. It is possible to infer that the correlation matrix is not an identity matrix given that Bartlett's Sphericity test produced a positive outcome.

INDEPENDENT VARIABLE

Medical Students' Culture: The interaction of changing methods of instruction, rigorous academic requirements, and the formation of professional identities shapes the culture of medical students. Academic stress, extended training hours, and high-performance expectations have an enormous effect on the mindsets and coping strategies of medical students worldwide. A lot of people utilise e-learning which is another unique aspect. Due to the increased frequency of e-learning brought on by the COVID-19 pandemic, more promising online lectures, digital anatomy laboratories and simulation platforms were established. The use of digital resources is growing in importance for medical students. They allow students more freedom, autonomy and effectiveness in their exam preparation (Sandhu & de Wolf, 2020). The unique challenges, coping mechanisms, and educational dynamics that constitute medical student culture in Hong Kong are influenced by rigorous training and cultural norms. Students get exposure to culture by participating in online learning environments. University of Hong Kong students majoring in clinical science, Chinese medicine and nursing all made different uses of mobile learning tools, according to research conducted (Zhang et al., 2020).

FACTOR

Collaborative Learning Culture: Collaboration is often described in the field of education as a strategy that involves students or students and teachers working together intellectually. In smaller groups or bigger ones, collaborative learning may take place. Students in pairs or small groups engage in collaborative learning via peer education, also known as peer learning, to explore concepts and resolve issues. As with the "two brains are better than one" studies in the

field of education have shown that when students work together in small groups, they can better comprehend and solve problems that everyone has. A collaborative learning culture is a way of active learning that promotes interaction between students and instructors and improves engagement and readiness for learning in a digital classroom. The medical education ecosystem has been changed by the increasing influence of digital and social media since the introduction of internet access in the 1990s. With the expansion of desktop computers, cell phones and other wireless mobile devices, online learning has quickly become an established form of medical education for both students and instructors. For instructors and students, collaborative online learning in medical education employs a range of techniques (Luk et al., 2020). Collaboration in e-learning promotes active learning and enhances the educational experience by bringing together students and facilitating the constantly evolving generation of knowledge at both individual and collective levels. Students may learn more actively online when they work in teams and share their individual experiences. Students learn better when they work together to solve issues, learn from each other's experiences, build on each other's talents and reach a shared goal. This gives them a feeling of belonging to a community (Herrera-Pavo, 2021).

DEPENDENT VARIABLE

E-Learning in Hong Kong: The term "e-learning" explains online courses that use both real-time and delayed knowledge transfer. While synchronous systems can allow for real-time communication, troubles with connection, inadequate infrastructure and insufficient engagement are common obstacles. There is a lot of appreciation for the adaptability of asynchronous approaches which help students surmount time and location restrictions. With the development of e-learning, logistics costs may be extremely reduced, offering a world of unlimited learning opportunities. Numerous research possibilities, enhanced collaborative learning, flexible learning and a new role for the instructor are all created by e-learning. Incorporating e-learning into medical school curricula enhances medical education by giving instructors more tools to help students learn and evaluate their progress. The fact that different kinds of e-learning materials are used at different rates across different disciplines shows that there has to be a shift in the design and development of these resources that better reflects the educational demands and educational styles of medical students (Baral, 2021). An outstanding illustration of the use of technology in medical education can be discovered at Hong Kong University's Li Ka Shing Faculty of Medicine. To further explain the steps involved in surgeries, they use 3D anatomical tools, augmented reality/virtual reality simulators and other innovative instructional materials (Xiong et al., 2020).

Relationship between Collaborative Learning Culture and E-Learning in Hong Kong: Collaborative learning culture in e-learning is a method of communicating and transmitting information that makes use of electronic devices connected to a network to accomplish its goals. Promoting medical students to engage in productive dialogue with one another via questioning, arguing, explaining, solving, and ideation highlights the need for adequate contact

among learners. Regularly, e-collaborative practice is made possible by several abilities in learning management systems. Researchers have shown that students perform better on tests measuring psychological, social, cognitive and meta-cognitive learning when they collaborate in teams rather than working alone. Furthermore, the idea of group work and collaborative learning is promoted by learning constructivist ideas. Students' involvement which in turn affects their academic achievement has been significantly impacted by their interactions with classmates, teachers and the practices of knowledge transfer. In a collaborative learning culture, students are able to rely on each other for help and finish tasks that would have been impossible for them to undertake alone (Warsah et al., 2021). Particularly when it comes to e-learning, the Blackboard platform is a place where students and faculty may connect to obtain course materials, create communities and immerse themselves in discussions. At the same time, critical thinking includes scientific reasoning procedures including determining and describing an issue, researching the topic to have a more reasonable understanding of it, evaluating possible outcomes connected to the underlying problem and coming up with workable remedies for the problem (Zenouzagh, 2020).

Based on the preceding discussion, the researcher developed the following hypothesis to examine the role of collaborative learning culture in e-learning in Hong Kong:

"H_{01}: There is no significant relationship between collaborative learning culture and e-learning in Hong Kong."

"H_1: There is a significant relationship between collaborative learning culture and e-learning in Hong Kong."

Table 2. H1 ANOVA Test.

ANOVA					
Sum					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	42693.258	198	3655.517	956.389	.000
Within Groups	998.434	359	3.166		
Total	43591.692	557			

This investigation produces substantial results. The F value is 956.389, with a p-value of .000, indicating statistical significance below the .05 alpha level. This signifies that the ***"H_1: There is a significant relationship between collaborative learning culture and e-learning in Hong Kong"*** is accepted, and the null hypothesis is rejected.

DISCUSSION

The study's results highlight the significance of a culture of collaborative learning in determining the future of online education for medical students in Hong Kong. The results clearly indicate

that medical students who participated in group-based activities, collaboration and peer discussions gained higher outcomes in engagement and adaptation to virtual educational environments. A strong culture of collaboration in the classroom improves students' capacity to learn. This happens when students can pool their resources, share what they know and assist one another.

The study further revealed that there are certain barriers to integrating collaborative practices into medical education in Hong Kong. Students' various levels of engagement and communication styles were cited by several respondents as major obstacles to productive cooperation. Furthermore, the emphasis on individual evaluation and exam-oriented performance inside institutions was considered to restrict the growth of long-term collaborative learning. There may be limits to the effectiveness of e-learning in the absence of sufficient institutional backing and well-designed frameworks for collaborative engagement. Regardless of these challenges, the study's results indicate that medical students in Hong Kong would benefit from greater emphasis on collaborative learning if they wish to improve their e-learning. Students may be better prepared for academic and professional success in the medical sector by developing a more supportive and engaging digital learning environment via the use of interactive technologies, group-based evaluations and group work.

CONCLUSION

In the conclusion, the study's results show the significance of a culture of collaborative learning in medical education particularly when it comes to assisting Hong Kong's medical students improve their e-learning practices. If students actively engage in collaboration, group discussions, and collaborative problem-solving, they will be able to make the most of online platforms, encounter a lot of different points of view, and feel comfortable studying in virtual surroundings.

The study shows that successful e-learning is linked to a strong culture of collaborative learning among medical students in Hong Kong. The study further shows that there are obstacles to the development of collaborative practices such as communication style contrasts, unequal involvement in group activities and an emphasis on personal evaluations by institutions. Despite these obstacles, promoting collaboration continues to be critical for medical students' online education to be more welcoming, engaging and productive. Optimal learning results may be achieved by combining online and in-person instruction in ways that promote both individual and collaborative exploration of course material. Both teachers and students will need to change how they conduct activities in the classroom as well as become used to using digital tools for group work. It will help them to get better at collaborating in fast-paced virtual classrooms. Blended learning approaches, which combine traditional classroom instruction with online collaboration tools provide an alternative since they authorise students to take advantage of both the structure and flexibility of digital learning while still receiving the individualised attention they need.

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