A DETAILED EXAMINATION OF MEDICAL STUDENTS' CULTURE AND CONCEPTS TOWARDS E-LEARNING IN HONG KONG.

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ABSTRACT

Hong Kong is an exceptional instance of the way the quick integration of digital technologies into education has transformed medical learning across the world. This is because it is a densely populated city with a bilingual academic culture and a concentration on technology-driven education. This study analyses the influence of digital literacy, accessibility, learning attitudes, and institutional support on the culture and viewpoint of medical students in e-learning. A quantitative survey technique and stratified sampling produced 558 valid answers from medical students, ensuring representation across occupational categories. The researcher employed SPSS version 25 to look at the data using descriptive and inferential statistics such as ANOVA and factor analysis. The results demonstrate that students' level of digital literacy particularly influences the effectiveness of e-learning. Students with fewer digital skills had more difficulty using more advanced e-learning tools. On the other hand, students with more prominent digital skills found it simpler to connect with the information, be flexible, and work collaboratively on projects. Some of the ongoing problems that the research has shown include inadequate access to technology, inconsistent training for being ready for digital learning and limited financing that makes it challenging for e-learning systems to expand their reach. The findings suggest that digital literacy is the major factor in assessing the efficacy of e-learning, notwithstanding the array of challenges outlined. This study contributes to existing research by analysing the e-learning experiences of Hong Kong medical students and advocating for more support for digital training, infrastructure, and hybrid learning methods.

Keywords: Digital literacy; medical students' culture, e-learning, Hong Kong, medical education.

INTRODUCTION

The 2019 Coronavirus Disease (COVID-19) pandemic initiated a distinctive and swift transition from traditional, physical education to e-learning methods all around the world. This dilemma highlights the need to promote e-learning in the context of contemporary education. Individual courses can be remotely delivered at their convenience using e-learning systems. Following that at certain times, students may join in on live conversations guided via audio and video conferencing. When students actively engage in their online learning, it produces excellent results. There was an awareness that this was critical to the cultivation of self-directed, lifelong

learners, a quality that is necessary in the medical field. Some claim that this kind of education will better educate future practitioners to work with electronic health records and to deliver medical care via telehealth if recent students are comfortable with it (Maatuk et al., 2022).

Hong Kong has actively promoted e learning for the past two decades. As technology has improved, e-learning has shifted from concentrating on hardware to concentrating on how it may be used in medical school. By making learning more accessible, interesting and tailored to each student, e-learning intends to increase students' capacity for self-directed learning, facilitate the incorporation of technology into the e learning process and ultimately lead to lifelong learning. The practice of modern medicine and the education of future physicians are increasingly dependent on technology advancements in diagnosis and treatment (Sharon, 2024). E-learning, often called mobile learning or digital learning is a type of education that uses electronic devices and media. Medical students are using technology like mobile phones, tablets, and computers more and more in medical school classes to help them study. Several factors contribute to an online course's success or failure which include its accessibility, the techniques used, the course material and the evaluation criteria. The advantages of e-learning include the capacity to access materials at any time and from any location, as well as its overall convenience. While many schools in affluent nations have already begun using online courses, those in developing nations often lack the resources necessary to fully implement e-learning programs (Gismalla et al., 2021).

BACKGROUND OF THE STUDY

E-learning has increased in popularity in the last few decades reflecting a shift in the way people study and get their degrees. E-learning facilitates interaction between instructors and students via the use of various forms of electronic media and technology. The rise of e-learning as a means of continuous learning for students coincided with this time. There was a time when the traditional approach of teaching in a classroom setting was the only way to learn in Hong Kong. The effectiveness of e-learning has recently attracted growing academic attention due to its growing usage in medical schools. This is noteworthy since it determines whether students are able to accomplish satisfactory learning outcomes. Many people had reservations about the lack of medical educators throughout the world even before the epidemic hit. Given the enormous demand for medical care during the epidemic, a few medical students had to put their teaching careers aside to focus on patient care (Jayaram et al., 2021). The shortage of resources for medical teachers gets worse due to work and research. As a result, a growing number of medical school courses are being offered online. Despite the fact that e-learning has been promoted for a long time, the latter is still seen as supplementary. Perhaps some lessons for the shift of the teaching model may be derived from the large-scale experiment that resulted from the unexpected suspension of classes, which tested the skills of both instructors and students to apply e-learning (Samuel, 2021). This new normal necessitates e-learning. Reviewing the successes and failures of e-learning is important for promoting its further growth. Therefore, the purpose of this research is to learn about the present model of e-learning

implementation in schools, the opinions of online education instructors and students, and the question of whether or not Hong Kong society has the necessary infrastructure to support e-learning.

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PURPOSE OF THE RESEARCH

The purpose of the study is to conduct an in-depth examination of Hong Kong's medical students' culture and concepts towards e-learning. The primary objective of the research is to understand the prime issues such as accessibility, usefulness, digital literacy, learning culture and other related factors in the competitive and highly demanding medical education field. The technological readiness, the learning attitudes, self-discipline and relevant factors were studied in the research to assess the correlation of the given subject. As the Hong Kong education culture is quite different from other regional education systems in terms of lifestyle, culture, bilingual instruction and reliance on technologies, the research specifically focused on those aspects and researched these regional factors. Moreover, the study investigated the underdeveloped aspects of e-learning which can further be improved to enhance the pedagogical methods of e-learning as well as medical students' experience while using the e-learning. The study's findings can be useful for educators, medical students and educational policymakers to design more effective learning practices using technology and improve the overall quality of e-learning in medical education in Hong Kong.

LITERATURE REVIEW

Research in medical education recently has been trending towards e-learning tool creation and assessment with an emphasis on the tools' purported ability to revolutionise the field. A few scholars from Hong Kong investigated the e-learning environment specifically the challenges and prospects faced by students there. In spite of this, the brief history of e-learning education in Hong Kong has resulted in a lack of complete understanding of Chinese students of the internet (Jin et al., 2021). Another new school of thought sees e-learning more as marketing than a revolutionary innovation. In addition, the research found that students' assessment

orientation, physical health worries and privacy concerns are non-e-learning related elements that impact their e-learning behaviour (Tashkandi, 2021). Moreover, since the new generation grew up with phones and computers, today's medical students are more comfortable with technology. A lot of medical educators nowadays have not begun to utilise computers until much later in their careers, so they are often unaware of which online tools to use or how to make them work for their unique learning objectives. The age gap between teachers and students might make it more difficult for them to utilise e-learning tools fully and effectively (Purcell et al., 2023).

The Future Health Index 2020 research highlights the importance of medical technologies in inspiring the next generation of healthcare professionals. It emphasises the need to educate this generation on how to correctly utilise and understand data and technology (Yap et al., 2020). According to a study on medical college students, which focused on eHealth literacy (digital literacy in health), current methods of health education that aim to instil scientific and technological literacy in students should be modified to better fit the demands of the future (De la Hoz et al., 2021). Studies on the scope and consequences of e-learning on medical students were thoroughly evaluated by researchers. Among the many e-learning tools used in clinical care, the authors identified case-based learning, quizzes, question banks and multimedia as the most prevalent. The study discovered that the most effective learning materials for medical students consisted of animated films and contemporary drawings (Delungahawatta et al., 2022). However, problems with inadequate feedback and little interaction during online classes continue despite the effective engagement's capacity to help address many e-learning concerns. Institutional assistance and digital literacy growth will be required since the abrupt change to online learning indicated that both students and teachers were unprepared (Alimi et al., 2021).

RESEARCH QUESTIONS

What is the role of digital literacy in e-learning in Hong Kong?

RESEARCH METHODOLOGY

Research Design

This study used the method of quantitative research to evaluate the cultural norms and concepts around online learning among Hong Kong's medical students. The researcher used SPSS version 25 to examine the data. The researcher has used descriptive statistics to include demographic and project-related data. Inferential statistics, such as probability ratios with 95% confidence intervals were used by the researcher to determine the direction and strength of the relationships. A p-value less than 0.05 was considered statistically significant. To validate the data and find groups with statistically significant differences, the researcher used component analysis and analysis of variance.

Sampling

The researcher performed stratified sampling for the research purpose. A total of 516 participants are required for the research as per RaoSoft's sample size calculation. The researcher distributed 650 questionnaires proportionately among strata in an effort to reduce non-response. A total of 589 questionnaires were returned to the researcher after completion. A total of 558 respondents were considered legitimate while 31 responses were either incomplete or deemed invalid.

Data and Measurement

Structured questionnaire surveys were the main instrument of data collection. Part one of the survey asked for demographic information and occupations, while part two utilised a Likert scale with five points to gauge respondents' opinions on several aspects of project management. Stratified sampling ensured that all project types and roles were represented equally. The investigation's secondary data came from scholarly journals, corporate records and online databases.

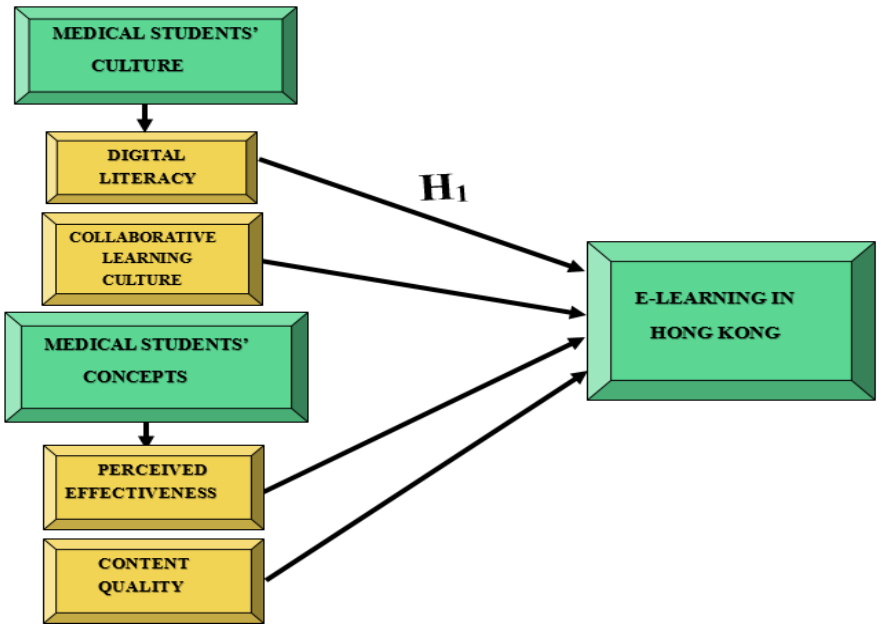
Statistical Software

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

Statistical Tools

Descriptive analysis has been employed to explain demographic and project-related characteristics across various strata. As an example of an inductive statistical method, the researcher used odds ratios with 95% CIs, analysis of variance (ANOVA) to compare groups and factor analysis to ensure the reliability of measurements and validate concepts.

CONCEPTUAL FRAMEWORK



RESULT

Factor Analysis: Validating the latent component structure of a measurement set is a common application of factor analysis. The effects of observable variables could be impacted by latent factors. Verification of model correctness using validation analysis (FA). It lays out the series of events that led to the observed outcomes including the hidden causes and measurement errors. To determine if data is appropriate for factor analysis, the Kaiser-Meyer-Olkin (KMO) test is used. To ensure proper sampling, the model and its variables are examined. The statistical method measures the common variance of several variables. When dealing with smaller percentages, factor analysis performs well. There is a 0–1 range that KMO produces. If the KMO value falls between 0.8 and 1, it is considered adequate sampling. The sampling is inadequate and steps must be taken to fix the situation if the KMO result is less than 0.6. When compared to partial correlations, general correlations with a value near 0 are weak. Complicating component analysis are meaningful correlations. Approval requirements set by Kaiser: The acceptability limits set by Kaiser are between 0.050 and 0.059. 0.70-0.79 is considered middle grade, while 0.60-0.69 is considered mediocre. Value of quality points: 0.80 to 0.89. Notable values will fall within the range of 0.90 and 1.00.

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 0.912.

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.912
Bartlett's Test of Sphericity	**Approx. Chi-Square**	3252.968
	df	190
	Sig.	.000

Primarily, this permits claims related to sampling. Researchers have used Bartlett's Test of Sphericity to determine if the correlation matrices are statistically significant. The sample size is adequate since the Kaiser-Meyer-Olkin score is 0.912. The p-value that arises out of Bartlett's Sphericity test is 0.00. Since Bartlett's Sphericity test produced a positive result, the researcher may conclude that the correlation matrix is not an identity matrix.

INDEPENDENT VARIABLE

Medical Students' Culture: The culture of medical students is shaped by the interplay of evolving teaching methods, strict academic requirements and the formation of professional identities. The attitudes and coping methods of medical students all around the globe are significantly affected by academic pressure, long hours of training and high-performance expectations. Another unique feature is that e-learning is used by a lot of learners. The COVID-19 pandemic drove up the routine use of e-learning, therefore more online lectures, virtual anatomy labs and simulation platforms were added. Digital resources are becoming more and more important to medical students' lives. They provide them greater flexibility, independence and efficiency while studying for tests (Sandhu & de Wolf, 2020). Medical student culture in Hong Kong is defined by specific stresses, coping strategies and educational dynamics that are shaped by strict training and cultural conventions. Being a part of e-learning platforms is a cultural experience for students. A 2021 study comparing students at the University of Hong Kong found that those studying clinical science, Chinese medicine, and nursing utilised mobile learning tools in diverse ways. Overall, clinical science students were more involved (Zhang et al., 2020).

FACTOR

Digital Literacy: The healthcare business is swiftly embracing digital systems that are improving patient care in various ways such as diagnosis, follow-up and treatment. Students studying in health sciences need to be proficient with machines so they can read and analyse data, examine medical imaging and use technology to improve patient care. Additionally, students pursuing health sciences must possess robust digital literacy abilities to understand possible risks and ethical implications related to healthcare technology. The ability to use information and communication technologies (ICTs) for information search, assessment, production and communication is known as digital literacy. It needs both technical and mental skills. In the context of medical education, being digitally literate means being able to use different digital tools for clinical practice, research and teach (Alowais et al., 2023). Due to the increasing relevance of digital technology in healthcare, digital literacy has become an important aspect of medical education. Understanding how digital literacy affects learning outcomes may help make changes to the curriculum that better prepare medical students for employment opportunities in the future.

DEPENDENT VARIABLE

E-Learning in Hong Kong: The term "e-learning" refers to the combination of synchronous and asynchronous learning methods in online courses. Synchronous systems permit real-time communication; however, they are often hampered by problems with connectivity, inadequate infrastructure and low engagement. The versatility of asynchronous methods which allow students to overcome geographical and time-related limitations is praised in contrast. The

learning method known as e-learning offers a great deal of freedom and flexibility. The use of various technological resources to design learner-centred approaches may lead to the accomplishment of stated objectives. As a whole, the Hong Kong Special Administrative Region (HKSAR) government has been working to advance online education in the territory. Institutions are also helping digital and immersive learning systems develop. Hong Kong University is an excellent instance of how medical education is using technology. They employ AR/VR simulations, 3D anatomy tools, and other modern educational resources to help students learn more about how they accomplish procedures (Holmes, 2023).

Relationship between Digital Literacy and E-Learning in Hong Kong: With the ability to effectively use digital tools, students majoring in health-related sciences may improve their capacity for ongoing education and have access to credible, current information. Digital literacy enables effective cooperation and communication with various healthcare professionals. When it comes to managing healthcare procedures using digital tools, it is beneficial to be able to manage the ethical consequences of doing so. The current healthcare system needs people to be more digitally literate than ever since so many people utilise digital health records, telemedicine, and mobile health applications. Studies indicate that enhanced digital literacy may lead to improved management of patient care information and clinical decision-making. Medical students would excel both professionally and academically by cultivating digital literacy skills. The study clarifies the relationship between medical students' digital literacy and their academic performance via its cross-sectional approach. The findings demonstrate a significant correlation between enhanced digital literacy and elevated academic performance. Students who were better at utilising digital communication tools and resources and assessing data from such technologies did better in school (Saha et al., 2024).

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

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

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

Table 2. H1 ANOVA Test.

ANOVA					
Sum					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	55270.659	193	4321.382	1011.257	.000
Within Groups	998.325	364	3.285		
Total	56221.384	557			

This investigation produces substantial results. The F value is 1011.257, 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 digital literacy and e-learning in Hong Kong" is accepted, and the null hypothesis is rejected.

DISCUSSION

The results of the study highlight the importance of digital literacy in shaping the advancement of e-learning for medical students in Hong Kong. The results clearly indicate that medical students with higher levels of digital literacy achieved better assessment outcomes in terms of engagement and adaptability towards online learning. Adequate digital literacy is important for medical students to access online medical databases and communication tools which enhance the individual learning abilities. The research also demonstrated that integrating e-learning into Hong Kong medical education has some difficulties and challenges as well. Many respondents in the survey claimed that the difference in digital competence can create a performance gap between students while engaging with advanced medical tools. While others reported that inconsistent training for digital readiness left medical students unprepared for the digital demands in medical education. Additionally, funding and infrastructure are two major components which create hurdles for digital literacy among medical students. Without sufficient investment in this sector, the effectiveness of e-learning may remain limited. Despite these challenges, the findings of the study conclude that in order to enhance the e-learning experience for the medical students of Hong Kong, the primary goal should be the improvement of digital literacy among students.

CONCLUSION

In conclusion, the study's results highlight the importance of digital literacy in medical education particularly for the enhancement of e-learning practices among medical students in Hong Kong. Students who perform well on exams that measure digital literacy are more likely to be able to use online platforms successfully access academic resources more easily and feel more at ease performing with others in virtual classrooms. These skills are essential for accomplishing well in medical school because they help students remember things better, be ready for clinical work and deal with the difficult academic atmosphere. The study finds that the level of digital literacy among medical students is closely linked to how well e-learning works in Hong Kong. The study further shows that there are still specific problems that make it hard to make digital literacy an integral component of medical education. It became clear that unequal access to technology, a lack of standardised digital training and inconsistent assistance from institutions were all ongoing problems. Even with these problems, enhancing digital literacy is still an important step towards making e-learning in the medical sector more achievable and open to everyone. For the best potential learning results in the future, e-learning and in-person classes may function well together. Both teachers and students will need to change the way they communicate, learn how to use digital tools, and stay informed on how e-learning technology such as big data and AI, changes over time. A possible approach to solve the

problem is to use a blended learning method that blends online resources with conventional classroom teaching.

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