ORIGINAL ARTICLE

Effect of Rapid Digitalization on Medical Faculty – A Qualitative Study

Redante D. Mendoza, MD, MBA, MPA, MHPE,[1] Jamie Eloise M. Agbayani, MD, RMT, MPM[2] and Susan P. Nagtalon, MD, MSPH[3]

[1]Center for Innovations, St. Luke's Medical Center College of Medicine William H. Quasha Memorial
[2]Department of Pediatrics, St. Luke's Medical Center College of Medicine William H. Quasha Memorial
[3]Department of Professionalism, Medical Ethics, and Humanities, St. Luke's Medical Center College of Medicine William H. Quasha Memorial

ABSTRACT

Background and Objectives. The COVID-19 pandemic forced academic institutions to suspend face-to-face activities, causing a drastic shift to a remote and online setting for learning and teaching. While necessary, the sudden change created a lasting effect on the constituents of medical schools whose curriculum relied on lectures, clinical skills, and hospital experience in teaching its students. This study aims to describe the effect of the rapid digitalization on the medical faculty at the St. Luke's Medical Center College of Medicine-William H. Quasha Memorial (SLMCCM) in Metro Manila, Philippines.

Methods. Members of the medical faculty of the college were invited to participate in focus group discussions (FGDs) where four frames were discussed, namely content, pedagogy, technology, and mindset. Responses taken in the FGDs underwent thematic analysis to find commonalities and patterns among the concerns and comments of the faculty.

Results. Analysis of faculty feedback regarding the four frames revealed a spectrum of responses, encompassing both positive and negative sentiments. Content-related feedback predominantly focused on strategies for effectively segmenting and synthesizing information within the online environment. Pedagogical concerns are primarily centered on adapting teaching methods and delivery styles to the online format. Technological feedback highlighted the perceived advantages and limitations of online platforms and tools, as well as the role of technological support in facilitating the transition to online instruction. Finally, a significant portion of the feedback addressed the psychological effects of the pandemic on faculty members as medical educators, with responses ranging from expressions of fear to statements of confidence.

Conclusion. In the context of the evolving educational landscape, particularly the accelerated adoption of online and hybrid learning models in medical education, faculty recognition of the necessity of digitalization is paramount. Despite the inherent challenges of this transition, the faculty's demonstrated openness to change and innovation presents a significant opportunity for institutional growth. By continuing to invest in these technologies, institutions can not only enhance the medical curriculum but also prepare future physicians for the increasingly digital nature of healthcare delivery.

Keywords: digitalization, digital transformation, faculty, medical education, technology

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eISSN 2094-9278 (Online)
Published: July 15, 2025
https://doi.org/10.47895/amp.vi0.9469
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Corresponding author:
Redante D. Mendoza, MD, MBA, MPA, MHPE
Center for Innovations
St. Luke's Medical Center College of Medicine
William H. Quasha Memorial
279 E. Rodriguez Sr. Ave., Quezon City 1112, Philippines
Email: redmendoza@slmc-cm.edu.ph

INTRODUCTION

At the onset of the COVID-19 pandemic, the institution was in the preliminary stages of digital transformation. The Learning Management System (LMS) had been deployed six months prior, but faculty training was just at the beginning. A single instance of fully online course delivery had been demonstrated on the first day of classes in 2020, which served as a model for subsequent full online instruction during the class suspension due to the Taal Volcano eruption beginning on January 12, 2020.[1] This online teaching modality was expanded to encompass didactic courses for year levels 1 through 3 during the pandemic period. In addition to the LMS, videoconferencing systems were utilized, and protocols for lectures, small group discussions, and online examinations were developed accordingly.

As the lockdown was declared by the Philippine government on 15 March 2020 in response to the events of the COVID-19 pandemic, the Commission on Higher Education (CHED) and the Department of Education (DepEd) subsequently suspended all face-to-face delivery of classes in all levels.[2] This drastically changed the direction of education, and the need for digitalization of materials and delivery was necessary to continue the functions of educational institutions. Because of this, many of them adapted to this rapid change with both students and faculty taking the brunt of this transition. Medical schools felt the effect of this change due to their reliance on the usually traditional mode of delivery of pre-clinical knowledge, clinical skills, and hospital experience in order to maintain the high-quality medical education, especially in the midst of a health crisis. Many challenges were presented to medical schools on how to properly deliver education to their students despite the circumstances brought about by the COVID-19 pandemic.

Digital transformation is a disruptive process that involves destruction and creation, which is pursued with the aim of creating more value.[3] In this context, there was a destruction of previous teaching paradigms, and creation of new innovative ways of teaching. It is truly wide-ranging, and the experience is akin to environmental turbulence and the practitioners take the brunt. In higher education, there were 5 high-level challenges identified with regard to digital transformation: (1) prioritization, (2) decentralized decision making, (3) human resistance to change, (4) gaps in digital technology, (5) narrow view of return on investment (ROI).[3,4] Our study provides an insight on challenges referring to independent decision making by the faculty (particularly on the content and pedagogy), human resistance (mindset) to change brought about by the destruction of teaching paradigms, and the gaps in digital technology, both the hardware, and the know-how on utilizing them.

In the context of our study, the pandemic significantly accelerated the ongoing digital transformation of medical education, pushing it far ahead the initially planned timeline. While a strategic plan for incorporating digital tools and platforms was in place, the abrupt shift to remote learning necessitated rapid adaptation and implementation; nevertheless, the overarching objective remained to maintain the quality of medical education while ensuring the safety and well-being of all members of the institution, particularly students and faculty.[5] To facilitate this transition, a series of comprehensive training sessions were provided to faculty members, covering various aspects of online instruction, including the use of learning management systems, video conferencing tools, and interactive platforms for student engagement. In addition, both faculty and students were granted access to a suite of technological resources, such as software licenses, cloud-based storage, and technical support services, to ensure a seamless transition to the online learning environment. This accelerated digital transformation, while initially challenging, ultimately fostered a new level of technological proficiency and innovation within the institution, positioning it well for the future of medical education.

While the acceptance of using online platforms for learning is seen as essential among medical students during the pandemic transition, enhancing these platforms would further improve its usage and utilization among both students and faculty members.[6] Although research has highlighted the open yet critical attitude of students towards digitalization in healthcare, particularly in medicine, there is a notably lack of studies exploring faculty attitudes towards this shift.[7] Additionally, while the necessity of technology training for students, often considered "digital natives," is debated, the requirement for comprehensive faculty support during this transitional period is unequivocal.[8] This underscores the need to investigate how faculty members were affected by this technological disruption. By examining their experiences and perspectives, this study can contribute to the knowledge base of medical education by providing insights into the challenges and opportunities faced by educators during this transition. Furthermore, understanding faculty attitudes and experiences with digitalization can inform the development of tailored training programs and support mechanisms, ultimately enhancing the effectiveness of online and hybrid learning models in medical education. This research has broader implications for society as well, as it sheds light on the effect of technological disruption on a critical profession, potentially informing strategies for managing similar transitions in other fields.

The Technology Acceptance Model (TAM), seen in Figure 1, proposed by Davis originally in 1985, is widely applied in the determination of individual and institutional acceptance of information systems and is used in testing the user acceptance of information technology.[9,10] It has been applied in numerous studies such as those involving word processors, web browsers, and telemedicine.

There are many in the scientific community, particularly in the field of information science, that believe that the

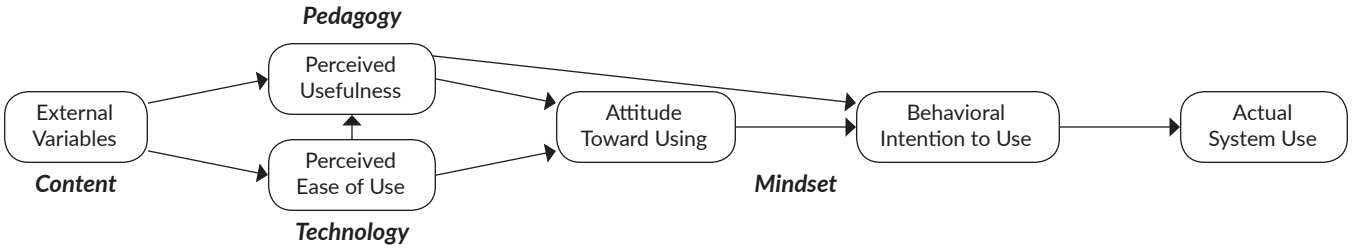

Figure 1. Technology Acceptance Model (TAM), adapted from the original schema by Davis (1985) wherein the actual system use is affected by the elements like external variables such as content needing to be delivered, ease of use of the technology, perceived usefulness in teaching (pedagogy) and the resulting attitude and behavior (mindset) about the technology.

TAM is insufficient, confusing, and irrelevant to the current modern context.[11] In line with this study, the TAM served mainly as an inspiration in devising a means to understand the effect of using new technologies on teaching in the field of medical education by looking at the elements of the TAM, mainly content needing to be delivered, ease of use of the technology, perceived usefulness in teaching (pedagogy) and the resulting attitude and behavior (mindset) about the technology. Moreover, while the TAM is limited in providing concrete data as to how to improve technology, the findings of this study would provide ample insight on the effects of the pandemic on medical education, particularly on one of its more important stakeholders, the faculty, and therefore allowing opportunities to surface regarding the continuation or discontinuation of using certain technologies in the field.

This study aims to describe the effect of the resulting rapid digitalization on the members of the medical faculty. Specifically, the study aims to describe how digitalization affected the faculty members, according to the four elements of TAM: content, pedagogy, technology, and mindset.

METHODS

Study Design

To describe the effect of the rapid digitalization on the medical faculty members, a descriptive qualitative study was employed using a series of focus group discussions (FGDs). Invitations were sent via email to all 148 faculty members of the college to partake in the FGDs. These consisted of four separate sessions to accommodate the varying availability of the teaching personnel. To maintain anonymity and ensure blinding, a member of the research team who has facilitated several focus group discussions with the faculty as part of her official role, was tasked to facilitate the FGDs.

Seventeen (17) faculty members participated in the study (7 males and 10 females with a mean age of 48) and accepted the invitations to attend one of the four scheduled FGD sessions. The FGDs started with a briefing on the informed consent, and participants filled in and submitted these prior to the start of the discussion. All of the faculty members who attended had either limited or no online teaching experience prior to the pandemic.

Materials

All sessions focused on four frames, as a response to some of the challenges mentioned by Alenezi, and in accordance with the TAM framework: (1) content, (2) pedagogy, (3) technology, and (4) mindset.[4,9] Each frame was devised with certain operational questions in mind (Table 1).

The operational questions in Table 1 are framed in first person with the intention to elicit personal reflections and experiences from the FGD participants. During the discussion proper, the member of the study team facilitating the FGD would rephrase these questions in a more conversational or open-ended manner to encourage a free-flowing discussion. All responses made during the FGDs were recorded using an audio recorder and transcribed by a research assistant and checked for correctness by the facilitator. The transcripts were sent to participants for concurrence. All data collected from the sessions were anonymized to ensure blinding and then passed to two separate members of the study team, who then subjected the transcripts of the discussion to thematic analysis using Microsoft Excel to find commonalities and patterns among the concerns and thoughts discussed with the participating faculty.

Table 1. The Four Discussion Frames Covered in the FGDs

Discussion Frames	Operational Questions
Content	• Do I modify the content, and the amount of, because of the circumstances? • What content should I prioritize?
Pedagogy	• How do I transition this content to online delivery? • Will I get trained for this requirement?
Technology	• Is the technology available to me to deliver this content on how I intended it to be delivered? • If not, can we procure this or a similar technology?
Mindset	• With COVID-19 pandemic in the background, am I ready for this? • Can I get support for something that I would like to try? • Will I still be needed after we transition to digital/online teaching?

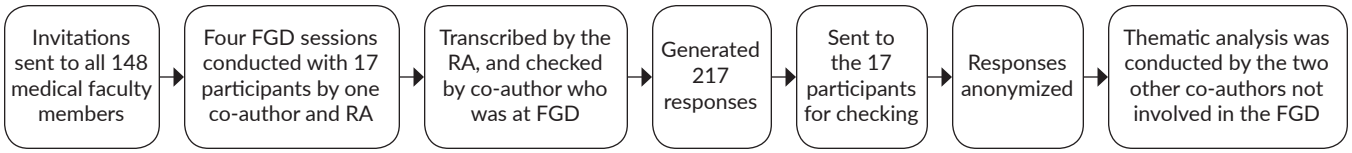

Figure 2. Data gathering and analysis, including transcript checks. Blinding is achieved by having separate teams for FGD and thematic analysis, and by anonymization of responses.

Reflexivity and Ethical Considerations

This study was approved by the SLMC Institutional Ethics Review Committee (SL-22219).

The group was interested in how the faculty members were coping with the pandemic and the rapid rollout of digital tools. RDM is the Head of the Teaching Innovations and e-Learning, and he oversaw the digitalization program that was ongoing when the pandemic struck. This study was a way of opening lines of communication between the faculty and the administration, as well as seeing the effects of the said digitalization on their teaching and mindset. JMA was the head of Faculty Affairs at the time of the study, and her role to hold and facilitate the FGDs, as assisted by a medical education consultant who has had an experience with qualitative research, was intentional as she knows every faculty, but does not hold power over the faculty as promotions and tenure are decided by the Dean. JMA has had extensive previous experience conducting FGDs. All the participants are comfortable with her. She blinded the data and submitted anonymous data to the other co-authors for analysis. SPN was the college Dean at the time of the study, and was invested in knowing how the faculty members coped during the pandemic. SPN never interacted with the faculty regarding this study before, during, and after the FGDs to mitigate her potential influence. RDM is interested in ascertaining the effect of digital technology rollouts and ways by which to ensure faculty will be able to adjust in future technological introductions. All three authors are fully accountable for the written document.

RESULTS

Two hundred seventeen (217) responses were collated from the transcriptions of the recordings of the FGDs. A research assistant transcribed and a co-author who also facilitated the FGD checked the quality of the transcription. The transcripts were sent to the participants for approval or correction. The responses were then anonymized and sent for thematic analysis. This process is illustrated in Figure 2. Table 2 shows the distribution of responses made according to the frames. Each response was categorized according to the themes, as recorded/encoded during the discussion by one co-author, assisted by a research assistant. The responses were then vetted by another research assistant. The category assignments were then validated and confirmed by a second author, and disagreements in coding were resolved through a collaborative discussion among the three authors. The final codes were derived from the emergent themes identified in the FGD.

Table 2. Thematic Distribution of Responses

Discussion Frames	Number of responses
Content	17 (8%)
Pedagogy	45 (21%)
Technology	66 (30%)
Mindset	89 (41%)
Total	217 (100%)

Content

Most of the responses concerning contents are neutral [~65%, 11 out of 17 responses], all acknowledging the challenges that the shift in setting presented.

Chunking

Thematically, most of their concerns [~76%; 13 out of 17 responses] revolved around chunking of content and integration with other courses, particularly in making their educational content suitable for online delivery in accordance with a modular curriculum design. Some stated that having to trim down their lectures to digestible, yet high-yield chunks of information was challenging yet essential.

> *"I took a course in Coursera, I saw how they managed to trim down their lectures into the essentials. We have to chop the lecture into 20 minutes (different sets)." (Participant SL-21146-F-036)*

They also raised that several factors were considered when modifying their materials, such as deciding which content best suited a synchronous or an asynchronous delivery and verifying if the materials were sufficient for the students' learning. They also mentioned the challenge of creating materials capable of piquing the interests of students.

Augmentation of materials available in public domain (i.e., educational videos)

A few participants remarked on the ways the online platforms and resources augmented their materials. Some such examples include being able to reference educational videos on public domains as supplements to their lessons and being able to use discussion fora to engage the students with their material.

Co-creation of content by a team

Faculty members perceived that the most effective content resulted from collaborations with educational technologists possessing multimedia expertise. This was attributed to the technologists' ability to present technical material in a manner that was both engaging and visually stimulating for learners.

> *"Well-designed content is done by a team; content expert, pedagogy expert, multimedia expert." (Participant SL-21146-F-042)*

Pedagogy

Need for online transition

With regard to pedagogy, the faculty raised several considerations that showed they had a general understanding of the necessity of transitioning to an online model of medical education delivery. The faculty were well-aware of the need to modify and adapt their materials accordingly to better suit the mode of teaching. Thus, as the manner of delivery drastically changed, the faculty were challenged to adjust how they would teach and assess their students.

The responses were mostly neutral in stance [~57%; 26 out of 45 responses] and focused more on their thoughts about the online or hybrid classroom setting. A quarter of the responses were negative, [~27%; 12 out of 45 responses] focusing mainly on their doubt about the effectiveness of digital pedagogy. The remaining responses were positive [~16%; 7 out of 45 responses], mainly about the advantages of digital pedagogy.

Changes to pedagogy

Notably, most of the concerns [~33%; 15 out of 45 responses] mentioned in the FGDs consisted mostly of the accounts of the faculty on the shift to an online setting, particularly the digitalization of activities and the use of the flipped classroom setup. The participants recounted the various changes they made to their pedagogy to better accommodate the virtual setting, citing examples such as providing dedicated question-and-answer fora at the end of synchronous lectures to clarify points, using pre- and post-lecture tests to assess student performance, and uploading of video lectures earlier than the scheduled date to maximize student access to the materials.

> *"From the conventional there is a shift, now the students know the lecture then do self-directed learning. The faculty is there to assist and answer questions." (Participant SL-21146-F-005)*

Also, depending on the subject matter they handled, faculty had varying approaches in adjusting their delivery, ranging from simply recording their lectures to taking home specimens to present via live lectures, to using online map services for touring communities.

This also raised discussions regarding evaluations and assessments, remarking on how the online setting improved monitoring of student performance and participation such as providing better accessibility to grades and better ways to engage critical thinking via discussion forum features available online.

Few responses were also made on the limitations of digital pedagogy. It was raised that the standard block system of lectures and exams would not completely satisfy the learning outcomes intended for their topics, compelling them to innovate by giving short quizzes and other requirements for the students to fulfill.

> *"Use of quizzes: I do a pretest and posttest (formative) quiz to be aware that the students are listening to the lectures." (Participant SL-21146-F-036)*

New pedagogical experiences with digital platforms

The faculty members experienced student pushback due to an increased number of assessments. In cases like these, the faculty were advised to ensure that the examinations are necessary and to remember that "students learn more when there are measures of performance and when schools pay attention to levels of achievement".[12] While the examinations cannot provide a 100% assurance that students are learning, they are an indispensable source of information.[12]

One notable comment expounded how challenging it was to deliver certain topics that required elements more meaningfully in face-to-face activities, such as understanding non-verbal cues in patient encounters, teaching anatomy using cadavers, and performing laboratory experiments.

> *"My subject taught is supposed to be experiential. But the students cannot go to the places we want them to be exposed. It was difficult to show empathy." (Participant SL-21146-F-032)*

Faculty acknowledged working around these challenges by utilizing the technologies made available to them such as recording videos and integrating them into their online lectures.

> *"I did live streaming for the laboratory." (Participant SL-21146-F-012)*

A frequently cited advantage of digital platforms is their capacity for direct communication with all students, facilitating immediate feedback exchange.

> *"I was able to communicate directly with the students. I learned what they need. We tried to adjust." (Participant SL-21146-F-016)*

Technology

Utility of online platforms

More than half of the responses [~59%; 39 out of 66 responses] regarding technology were neutral observations focusing mainly on the utility provided by the platforms being used, particularly when using StEPuP (the SLMCCM online learning ecosystem), Google Suite applications, and Zoom. Some notable remarks were on how the learning

management system (LMS) was utilized as the main way to connect with the students through posting lectures and lecture links, delivering quizzes, and other requirements and supplementary materials.

Other faculty shared how they used other tools and platforms made available to them, such as Zoom as both a means to record lectures and meet with their students for lectures. The Google suite was also mentioned a few times to be a useful platform ranging from also meeting students via Google Meets to making lectures on Google Slides.

> *"We used Google maps/satellite in trying to tour these communities. We even looked at the road to see how to access the health center and the hospital." (Participant SL-21146-F-032).*

Advantages of online platforms

About 21% [14 out of 66] of the responses highlighted the advantages of the platforms being used such as how the technology allows for distance learning, and reaching far communities where their students may reside. Alternatively, the technology allows for recording and uploading their lectures online, providing asynchronous access for students with limited internet access and resources. Moreover, being able to give feedback to students via these online tools were seen as helpful and convenient.

> *"One of the students requested to have the feedback for their responses in the exams in the LMS since we used to give the feedback face-to-face (after every exam)." (Participant SL-21146-F-021)*

Technological support

About 20% [13 out of 66] of all responses on technology were mostly discussing its limitations. These consisted of observations and experiences of the faculty that are a result of difficulty in using and navigating through the platforms. Some examples include receiving multiple notifications that were sent to all instead to those specifically concerned faculty, as well as having to adjust to having online interactions with students instead of face-to-face, being unable to directly interact with the students. Additionally, some remarked on how the students negatively received some of the functionalities of the platforms such as discussion boards and online group assignments, saying that they felt as though they are not learning as much as they would have as compared to more conventional methods like lectures and exams.

There were also responses commending the Teaching Innovations and e-Learning Unit (Ti-eL), the team dedicated to supporting the shift to the online setup. The remarks were mainly geared towards the troubleshooting and tutorial efforts of a certain department, particularly helpful in addressing the technological and personal struggles of the faculty during the transition to virtual setting.

> *"The Ti-eL and TAs [Technical Associates] were very helpful in doing technical work." (Participant SL-21146-F-040)*

A significant observation among faculty was the unequal access to the internet among students, raising concerns about potential limitations to learning opportunities.[13] This disparity, primarily a connectivity issue rather than a content issue, was identified as a worrisome variable beyond faculty control. To address this, policy adjustments focusing on content accessibility were proposed. Strategies such as making recordings and lecture slides available for download on the LMS during periods of internet availability could mitigate the effect of unequal access, promoting a more equitable learning environment.

> *"I realized that some students had connectivity issues. The opportunities are not the same for all the students. So aside from posting the recording of my lecture, I also uploaded my power point slides with embedded notes." (Participant SL-21146-F-017)*

Mindset

Between the four themes, the topic of mindset had the most responses and discussions during the FGDs. Different from the earlier three frames, most of the responses in this frame [~42%; 37 out of 89] were positive discussions mostly about the faculty's openness, readiness, and preparedness to learn, whereas around 27% [24 out of 89] of the responses mostly focused on the faculty's anxiety and begrudging compliance when navigating through the digital setting.

Anxiety

Amongst the faculty, responses relating to anxiety comprised a majority under the mindset frame [~25%; 22 out of 89 responses]. Many faculty members expressed being overwhelmed by negative emotions during the adjustment to the online setting. Feelings of fear and doubt in using the technology in administering their lessons and activities were prevalent as many faculty members found navigating through the platforms difficult and intimidating. These feelings were intense enough to even discourage some faculty from joining the teaching roster for the school year. Personal doubts were also raised as some faculty felt inadequately equipped to handle and manage using technologies to do their jobs as educators.

While the struggle was clear for most of the faculty, some responses raised feelings of confidence during the shift. Some mentioned not having much difficulty in using the tools for online delivery of their lessons, while some said that they struggled in the beginning but slowly learned to be proficient enough to manage on their own, showcasing their adaptability. Having these talented faculty who are willing to share and committed to help the organization is one of the success factors in navigating a rapidly volatile and uncertain environment.[14]

Help-seeking behavior

Those who found difficulty in navigating the technologies sought aid from the Ti-eL for technical assistance. Ti-eL not

only provided one-on-one assistance but provided training to all faculty and students through scheduled training sessions and through on-demand sessions (as requested by faculty). Because of this, several faculty members expressed gratitude for Ti-eL for their efforts to make their lives more efficient and ultimately easier on a technological level. Additionally, responses were made on how the orientations, tutorials, and seminars held by Ti-eL were helpful in preparing them for the shift, displaying a deep appreciation for the technical staff.

Openness

The faculty also expressed their openness and readiness to learn so they could deliver the best as teachers to their students. They remarked on how they willingly explore using these platforms in the endeavor of teaching medical education online. Some even expressed how they were willing to commit mistakes in learning as they are necessary in overcoming the challenges presented by the virtual setting, adding that repeated use let them get used to the technologies.

Begrudging compliance

However, despite the willingness and openness mentioned, some faculty expressed begrudging compliance to the directives set in place because of the pandemic as these forced their adoption to function as educators. Some added that they would much rather return to the conventional way of teaching done prior to the onset of the pandemic. Preference for holding face-to-face classes instead of online classes was brought up as they believed these are more natural and more organic as well as provides more direct interaction and engagement with the students.

> *"I would have to say that some faculty members are open to the digital tools." (Participant SL-21146-F-021)*

DISCUSSION

The main themes that were identified were aligned with the four elements of the TAM: Content, Pedagogy, Technology, and Mindset.

Content is an external variable in the TAM[15] and it affects how the users perceive the usefulness and the ease of use. There are contents that may seem difficult to deliver digitally without recalibration (e.g., long lectures). These are addressed in various ways, as mentioned in the subthemes: through chunking, by portioning the materials to bite-size comprehensible pieces; through the use of existing engaging materials that are available in the public domain (e.g., TED Talks); and through redesign of digital materials with the help of various experts (e.g., educational technologists).

Pedagogy affects the perception of usefulness as digitalization can offer a chance to modify and adapt the teaching method to make it more effective in delivering learning. The subthemes captured these: need for online transition is the impetus driving the pedagogical changes; pedagogical changes that are made to optimize the learning through the use of technology; new pedagogical experiences due to digitalization that the members of the faculty encountered such as challenges of transitioning, and student pushback.

The actual technologies used affect the perception of ease of use by the faculty members. The subthemes such as utility of online platforms which focus on additional utility that digital tools provide which were not available on non-digital platforms, such as the use of digital maps and streetviews; advantages of online platforms such as bridging distances. Technological support is very important in modifying the perception in ease of use, as technologically-challenged users are provided help and encouragement, and a safety net.

Mindset encompasses the "attitude toward using" and "behavioral intention to use" in the TAM model. The subthemes that emerged included anxiety, which is an overwhelming negative emotion due to the rapid changes in teaching; it also put into spotlight the help-seeking behavior of the faculty members and the availability of support once it is sought. Openness to new ideas and technology is the norm for the faculty members, which helped in the overall adoption of technology. In the end, despite all the support, the faculty complied with the requirements of digitalization, albeit some did so begrudgingly, as there were little options during the pandemic.

Overall, while there is no simple correlation between age or gender and openness to digitalization, individual differences play a significant role. People of all ages and genders exhibit varying comfort levels with technology, influenced by personality, past experiences, and perceived benefits or risks. Although younger generations, having grown up with technology, may be more intuitive users, older generations can be equally adept if they perceive a clear value in digital tools for their lives. Resistance to digitalization often stems from feeling overwhelmed by a rushed or poorly explained transition, fearing a loss of control over workflows and routines, or not seeing a clear personal benefit from the new tools. Socioeconomic status, access to technology and training, digital literacy levels, and workplace culture also significantly impact openness to digitalization. It is crucial to consider these multifaceted factors when analyzing the varying responses to digital transformation initiatives.

Limitations and Generalizability

The study was conducted in a private medical education that offers a limited range of degrees, and has a small enrolment (<1000 students). This may limit the study to similarly situated institutions.

Nonetheless, the findings are generalizable to institutional settings that are undergoing or preparing to digitalize their teaching and learning. Some of the concerns are common and remedies can be considered when dealing with the transition.

Future research in bigger institutions and publicly funded institutions using the same framework, and involving other stakeholders such as students and administration, may provide a more holistic view of digital transition in educational institutions.

CONCLUSION

Given the four themes in the thematic analysis, there are several key factors in understanding the effect of the rapid rollout of technologies on the faculty.

Content is a product of not only one but of many experts: the subject expert, the pedagogical expert, and the multimedia expert. Technology has enabled communication between the faculty and the learners, providing a new avenue of interaction and engagement, expanding the reach of pedagogy. Regarding the technology itself, a key success factor was the availability of technical support that provided a safety net that enabled timely support for faculty who were struggling with the digital transformation. Lastly, in the frame of mindset, the faculty had an open mind, being receptive to the changes being implemented, and that they will comply with the requirement to digitalize because they recognize it as a necessity.

Ultimately, the faculty were able to adapt their teaching as well as their content to the technology by having an open and collaborative mindset. Investments in these technologies can continue as the faculty welcome the change, opening more holistic opportunities to improve the medical education curriculum and equip the 21st century physician.

Statement of Authorship

All authors certified fulfillment of ICMJE authorship criteria.

Author Disclosure

All authors declared no conflicts of interest.

Funding Source

The funding for this research was provided by the school under the operations (faculty relations) budget.

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