E-Learning for Family Medicine Specialty Training

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Abstract---Since the COVID-19 outbreak, many learning institutions across the world have adopted e-learning programs. It has enabled students to continue with school at home as per the health protocols that restrict contacts and other physical relations. This aims to investigate the factors that influence the choice to implement, use, and sustain an effective eLearning program. Some of the factors investigated were the accessibility of resources, the collaboration of the students, technology, environmental and social factors, ease of using the internet, students computing abilities and costs as factors affecting eLearning. The research method used was qualitative, using a sample of 307 and an online survey to identify and investigate the factors being investigated, and analysis was done using SEM. Using Fornell–Larcker discriminant validity and Heterotrait–Monotrait correlation matrix, the data collected from the sample were analyzed, and results were represented in tables. The results of the study were that the factors that influence the use, implementation and sustainability of e-learning program for family medicine specialty training are; accessibility of resources, a collaboration of the students, technology, environmental and social factors, ease of using the internet, students computing abilities and costs. The conclusion was that looking into factors like cost and technology could help institutions assess and manage some risks and challenges related to e-learning. Careful consideration of factors like the students’ attitude, access to resources and computing abilities can aid in understanding students desire for collaborations during the online classes. Knowledge of social and environmental factors can help society learn and understand more about eLearning. Their acceptance and embrace of the learning programs’ changes can significantly help create a friendly environment at home for the students.

Keywords---e-learning, social factors, physical relations, technology, environmental.
Introduction

ELearning is picking up pace in many learning institutions globally. Some institutions are considering continuing with some of the online learning programs even after the end of the Covid-19 pandemic. Even though the outbreak of the Covid-19 outbreak has forced many learning institutions to adopt eLearning, they have been a lot of challenges during the implementation process (El-Masri & Tarhini, 2017). Many factors have played significant roles in the implementation, adoption, use, sustainability, and scalability of eLearning for family medicine specialty training in the country, making it challenging for many institutions to effectively continue courses online (Al Kurdi et al., 2020). Unlike in face to face learning, the lecturers have limited control over the students’ decisions, more so those that ensures their concentration during these classes. Besides, one might say that the acceptance of the community members based on their beliefs on the effects of the learning program will determine whether learning institutions will decide to use the program. However, even if they go ahead and implement the eLearning strategy, the program’s success might be at stake if society is against the program (Abbasi Kasani & Shams, 2018). All these factors have a part to play in the eLearning programs in many institutions. In addition, these factors have influenced the perception of eLearning in the community, determined the cost of implementing the program and the effectiveness in delivering. Students have an advantage in facts, and they can decide when to visit these learning materials and participate in learning activities. Some of these factors like environmental and social factors are underestimated in the context of eLearning (Hernandez et al., 2011; Sun et al., 2008). Environmental friendliness have a significant effect in setting a conducive environment for student learning (Mbarek & Zaddem, 2013). The perception people in the community have about online studies sets the mood for the parents, siblings and other family environment that helps the students at home. I aim to investigate these factors and how they influence the implementation, adoption, use, sustainability and scalability of eLearning for family medicine specialty training. I will focus in each of the factors and find out more about how they affect eLearning.

Conceptual framework of study

Many researchers have identified some of the s factors in their study to investigate more about eLearning. A study by Solangi et al, (2018) is but one of the many studies conducted to find out more about the factors impacting eLearning in Saudi Arabia. The aim of the study is to investigate the factors affecting eLearning in Jubail Industrial College (JIC), Jubail University College (JUC) and Jubail Technical Institute (JTI). Using Technology Acceptance Model, it investigates the issues and discovers that the learning management among other factors like Student Corporation plays a significant role in the choice to use and implement eLearning programs effectively. Their experiences during the online classes are mostly predetermined by already formed notions and perceptions from other fellow students. If the lecturers construct the timetable without consulting the students, a number of the students will be inconvenienced, which can significantly affect the classes. These students must be given all the reasons to collaborate with eLearning to implement and sustain the program. When a course
is more demanding, technical and requires more practical classes, it would be inconsiderate for the students to learn online.

Cost is a significant factor in any learning program and strategy proposed by an institution. E-learning demands several changes in the constitutions programs, costs and management strategies (de Souza Rodrigues et al., 2021). There are costs to be incurred in both the institution and the students engaged in the learning curriculum. Before settling on e-learning, an institution must consider the program’s total cost, including the software and programs that are needed for the websites. If the cost is too high, the institution might be forced to reconsider implementing its e-learning idea into practice. However, if the costs are relatively affordable or do not have any other option but to shift the classes to online, the institution must be ready to incur costs. The cost of e-learning is somehow considered to be lower compared to face-to-face learning from the lecturers and management side. However, on the students’ side, the cost might be a little more demanding in terms of cost. The availability of the funds and dedication of the parents funding the e-learning program significantly impacts the decision to use, implement and sustain e-learning for family learning.

The classrooms, online platforms and the physical environments at school play an essential role in setting the mood and atmosphere of studying (Venkatesh, et al., 2020). Therefore, a favorable condition that home and school ensures that the learning program is successful. In classrooms, the teachers ensure that the classroom is conducive enough, which they cannot do during e-learning classes. Students having difficulties sleeping or not having enough food and experiencing other challenges are more likely to perform poorly in online classes. Therefore, the success of the e-learning program is directly linked with these environmental factors, thus for the effective implementation and scalability of the e-learning of family medicine.

According to Dolek et al., (2018) the availability of technology is an influential factor in the implementation, use and sustainability of e-learning programs. E-learning is all about accessing learning materials using the internet made
possible by the innovations of technology. More importantly, the institution’s technology should allow access to the website and portals using mobile phones. It makes it possible for the students to access their portals for class attendance, assignment completions, and viewing the course’s progress at any place and time. The availability of technology and the programming capabilities of computers have made it possible for learning institutions to have websites. Therefore, the reliability and delivery of the websites determine the implementation, use and sustainability of eLearning because if the system cannot deliver, then eLearning cannot occur. The availability of the technology and effective installation of the software is necessary to ensure no technicalities during use.

**Research question**

What are the factors influencing the implementation, adoption, use, sustainability and scalability of eLearning for family medicine specialty training?

**Hypotheses**

- **Hypothesis 1: (H1) Technology**
  Technology has played an essential role in making learning easier through the quick and easy access of numerous learning materials at the comforts of our home. Computers and the internet are the two vital components needed for eLearning, and they are all part of this factor.

- **Hypothesis 2: (H2) Availability of the learning platform**
  The availability of the learning platform and the complexity when navigating the sites is a determining factor of the students’ experience. The accessibility of the portals and online learning materials is a determining factor in the use, implementation, sustainability and scalability of family medicine.

- **Hypothesis 3 (H3) Students’ collaboration**
  The willingness of the students to learn is an influencing factor in implementing an eLearning program. eLearning needs to be a collaborative learning program to be a successful learning program since the students must create free time while at home.

**Research Methodology**

**Study design**

The study aimed at coming up with a conceptual model to help evaluate online learning. The method conceptualize the model in a specified procedure. The first step was to look at the already used items by extracting dependent and independent variables using the nominal group technique. The second step was to analyze empirically the proposed model in the study to help determine how people have taken the eLearning program.

**Research materials**

The data collection method used in the study was administration of questionnaire. A survey using a list of questions was done on already selected
sample. The survey had two sections each with relevant details. The first section contained the informed consent confirmation required before commencing the study. It also contained questions to help collect demographic information of the participants. The second part contained questions related to the study question being investigated. Normal group technique was utilized to help in screening the variables.

**Sample size**

Data was collected from the students who decided to participate in the study. Using an online survey, the formula, \( SS = z^2 \frac{(p)(q)}{e^2} \)
The sample size \( Z \) was 95% confidence (1.96), \( p \) value was 0.6 and \( q \) (1-\( p \)) value was 0.4. The error value to be 0.05. Using the formula;
\[
SS = (1.96^2) \frac{(0.5X0.4)}{0.05^2} \\
SS=307.33
\]

**Sample variable**

Accessibility if resources, collaboration of the students, technology, environmental and social factors, ease of using the internet, students computing abilities and costs were the variables in the study.

**Data analysis**

SEM (Structured equation modeling) was used in this research to analyze the collected data and average variance extracted (AVE used to investigate the credibility of the data. Finally, variance inflation factor was used to check the multicollinearity in the factors.

**Findings and analysis**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Number</th>
<th>%</th>
<th>Cumulative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>147</td>
<td>47.9</td>
<td>47.9</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>160</td>
<td>52.1</td>
<td>100</td>
</tr>
<tr>
<td>Knowledge of eLearning</td>
<td>Good</td>
<td>120</td>
<td>39.0</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>Average</td>
<td>100</td>
<td>32.5</td>
<td>71.5</td>
</tr>
<tr>
<td></td>
<td>Poor</td>
<td>87</td>
<td>28.5</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Satisfied</td>
<td>187</td>
<td>61.0</td>
<td>61.0</td>
</tr>
<tr>
<td></td>
<td>Unsatisfied</td>
<td>120</td>
<td>39.0</td>
<td>100</td>
</tr>
<tr>
<td>Area of study</td>
<td>School of Medicine</td>
<td>30</td>
<td>9.8</td>
<td>9.8</td>
</tr>
<tr>
<td></td>
<td>School of Engineering</td>
<td>45</td>
<td>14.6</td>
<td>24.4</td>
</tr>
<tr>
<td></td>
<td>School of Language and</td>
<td>29</td>
<td>9.4</td>
<td>33.8</td>
</tr>
</tbody>
</table>
The statistical tool used in the study was SEM to help in the analyses of the data collected. One of the things students suggested to be changed about the eLearning programs was the accessibility and convenience of the classes. Accessibility factors include the ability of the students to access the internet and the required resources needed for eLearning. The students have the advantage in deciding when to access this learning material and engage in the learning activities (Shin et al., 2017). It tends to help solve the minor issues of time of meetings and attending classes since all the students must be available simultaneously. Furthermore, the students are convenient because they can create their free time when they are settled to read the course material and do the assignments in the school portal. Therefore, the convenience and accessibility of the learning platforms significantly affect the use, implementation and sustainability of eLearning family medicine.

Costs for setting off the program include the student’s access to the internet, purchasing computers, the institutions’ upgrade to their website and student portals, purchasing certain software, and employing extra IT people. Uploading video files and instructional materials are bound to have a direct bearing on the costs of learning. The website is more likely to be overworked by the increased number of logins and activities by the students taking their classes online. Therefore, their need to be constant maintenance and updates to the system to help ensure everything runs smoothly. There are also costs incurred by the students in purchasing the device for accessing the portal and paying for the internet services.

Table 2
Fornell–Larcker discriminant validity

<table>
<thead>
<tr>
<th>Construct</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility of resources</td>
<td>0.733</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaboration of the</td>
<td>0.605</td>
<td>0.743</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3
Heterotrait–Monotrait correlation matrix

<table>
<thead>
<tr>
<th>Construct</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accessibility of resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collaboration of the students</td>
<td>0.841</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>technology</td>
<td>0.809</td>
<td>0.794</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students’ computing abilities</td>
<td>0.619</td>
<td>0.719</td>
<td>0.787</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost</td>
<td>0.920</td>
<td>0.830</td>
<td>0.736</td>
<td>0.570</td>
<td></td>
</tr>
<tr>
<td>Environmental and social factors</td>
<td>0.750</td>
<td>0.989</td>
<td>0.715</td>
<td>0.681</td>
<td>0.671</td>
</tr>
</tbody>
</table>

The way the students spoke about the online classes told a lot about how their feelings and emotions toward the program. The willingness of the students to cooperate by themselves is an essential factor in deciding whether the eLearning program being implemented will be effective at the end of the class (Nagy et al., 2020). When not in the school environment, it might be challenging for the students to stop their schedule and pay attention during online classes. At the end of an eLearning program, the students are trained in collaborative learning, where the students are entrusted with notes to read on their own and present themselves to handle exams. Attitude, also linked with the collaboration factors, helps set the pace and enlighten the students. The Learning Management System in the institutional website linked with the Human Resource Management System is but one of the impressive capabilities of technology. At the beginning of the setup, the website should integrate using the basic integration options. However, as the number of students increases with the increase in the number of complex course programs, the system’s type of technologies and capabilities to handle the high number of students is an influential factor in the use, implementation, sustainability, and scalability of eLearning family medicine speciality.
The decision to teach a course online depends on the complexity of the course being taught. Some courses are better taught face-to-face instead of online. The decision to teach family medicine specialty training is significantly affected by this factor since it requires care and special attention to learn the skills needed for the profession. The less complex the course is, the higher the chances of recommendation and success in the implementation, use, sustainability and scalability of eLearning the course (Tarhini et al., 2017). Therefore, the institutions need to assume that all students can use computers and navigate the school website. In some cases, the school website might be complex, and this needs time to get to the right sites and get the resources needed for classes. Family medicine specialty training requires additional practical classes to acquire skills and experience in dealing with patients, which makes the implementation and use of eLearning unsuitable for the course.

Discussion

The resistance against online classes results in poor class attendance that is unacceptable for a medicine student entrusted with people’s lives. For the lecturers to ensure that the students are collaborative, they must communicate effectively with the students to help set some conditions like timing. When and how long the study will last is best decided by the students, or else they will not collaborate during the study. Students computing ability determines the institutional choice to use, implement and sustain an eLearning program. Students need to have computing skills to have an easy time accessing the websites and navigate through the databases to obtain the information needed. The ability of the students to use the relevant software in computers and operational machines online is a necessity for all students before an institution decides to teach a course like family medicine online.

If any stimuli that provoke them to support or go against the program are triggered, they will respond accordingly. Therefore, the social beliefs in the surrounding environment and the institutions about the effects of eLearning will influence the learning program. For example, people's ethical principles and moral beliefs about eLearning and how it affects social skills is a common debate today. Moreover, people raise questions saying that online classes make children lack some essential surviving skills like social and creative skills. These suggestions show how people take eLearning in the community, which are always taken seriously by the community members. Personal factors impact people's emotions and cooperation in the classes, like rivalry and friendship. The relationship between the students, teachers and the parents significantly affects the adoption of the eLearning system. Social factors play a role in people's belief in the learning technique that determines their trust in the results of the eLearning program. Relationships are directly related to people's psychology and beliefs.

Conclusion

It often helps to solve small problems of meeting and class time, because all students must be available simultaneously. It is convenient for students because they can create free time when they settle down to read course materials and
complete assignments in the school portal. In this process, both the institution and the students participating in the course will incur costs. Before deciding on e-learning, the organization must consider the program's total cost, including the software and programs required for the website. Students' willingness to learn is an influencing factor in the implementation of e-learning programs. E-learning needs to be a collaborative learning plan to be a successful learning plan because students need to create free time at home. Unlike face-to-face learning, lecturers have limited control over students' decisions and more of a decision to ensure their concentration in the classroom. When it comes to the implementation, use, and sustainability of e-learning programs, the availability of technology is an influencing factor. E-learning is about using the Internet to access learning materials through technological innovation that makes it possible. More importantly, the technology used by the agency should allow the use of mobile phones to access websites and portals. It allows students to access their portal at any place and time to understand class attendance, homework completion and view course progress. The students' home environment influences the use, implementation, and success of eLearning. The physical parameters that students must meet to concentrate and perform are inextricably tied to the learning environment.

Limitations of the study and future scope

The fact that most of the sources are secondary is a limitation in this study. The information is not first hand and this increases the probability of the information included being incorrect. The research should be one of the many to come investigating the currently increasing eLearning program. The research focuses on the results of the study was that the factors that influences the use, implementation and sustainability of eLearning program for family medicine specialty training which is narrowed. It raises ideas and questions that should enable the future researchers to focus on and investigate the factors influencing the use, implementation and sustainability of eLearning in each discipline and training programs.

References


