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EXPLORING FACTORS INFLUENCING ON ONLINE LEARNING AND WAYS TO DEVELOP ONLINE LEARNING AFTER COVID 19 PANDEMIC

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ABSTRACT

In recent years, ordinary objects are also connected to the Internet at a faster rate than ever before. People now can use the Internet for money transfers, shopping order online food. In the year 2020, many e-commerce businesses and other digital trends have adapted during the Covid-19 outbreak by transitioning everything to online. Among them, the education system in many countries has successfully developed alternative opportunities by moving towards e-learning. While most schools and universities are closed, the world is quick to embrace the introduction of online learning classrooms in which access to curriculum courses and resources are made possible Hodges et al. (2020). This research paper aims to identify different factors affecting online learning. In this study, the dimensions we explore are potential factors influencing online learning and feasible ways to develop this issue after Covid 19 pandemic such as students' attitudes, perceptions of online learning) gathered from the 200 responses from students to discuss and evaluate our findings for the future change of online learning after Covid 19 pandemic.

INTRODUCTION

With the remarkable development of technology and the Internet, E-learning models are expected to boom amid the COVID-19 pandemic (Dhawan, 2020). Together, teachers and learners can organize virtual classrooms through applications such as Zoom, Google Meet, Big Blue Button, and engage in interactive and engaging lessons behind a screen. Since the Covid19 pandemic, there has been a significant surge in education technology in North America and Europe along with Asia and Southeast Asia, while several parts of the world have struggled to deliver distance learning solutions

(Raes et al, 2020). Never waste a good crisis, coronavirus has represented an opportunity to rethink education for the better. Once received global acceptance, online learning has been regarded as the best alternative education for all its unique and vital traits that only it possesses (Dumford & Miller, 2018). While every single industry needs to work from home and face a lot of difficulties, the education industry could gain some opportunities to expand its market into the online program to match online learning behavior.

In Vietnam, E-learning has become the new normal for students since schools have remained closed due to the CCvid-19 pandemic. Unfortunately, ethnic minorities locating in areas with scarce Internet supply were reported to grapple with e-learning. However, there were prompted preparations underway to ensure continuity of school learning. On top of that, the Vietnamese Ministry of education and training has decided to apply advanced technology for each level of education to adjust teaching methods and learning expectations. For example, students of Hanoi Open University conformally follow through with instructed protocols to contribute to a smooth-running online collaboration between them and educators. The United States has witnessed record spikes in the demand for online learning. Although there were mixed responses, the majority of them are in favor of keeping online classes post-covid. Many education managers state that to graduate high school and college, students are to transition and complete courses online wherever is possible (Liguori & Winkler, 2020). The US educational institution is paving the way for open online learning in the 21st century.

In Korea, the government sees this as an opportunity for cost reduction. They accommodate learners with a free lecture on the Internet which has attracted national attention.

In contrast, there are noted responses where online learning was regarded as a type of provisioning over teaching and traditional teaching was preferred over online ones (Rasheed et al, 2020). The main objective of this study is to Explore and analyze factors affecting online learning; Identify problems and solutions for developing online learning post-covid.

LITERATURE REVIEW:

E-learning

Online learning is a tutoring method taking advantage of the benefits of technology and the Internet to unlock educational barriers of geography and time (Lobo et al, 2020). Through online education platforms, instructors can create, host and deliver lectures, public academic materials on a learning management system (LMS) which can be considered as both an efficient and safe learning environment (Kraleva, 2019). On such cloud class platforms, learners are free to start conversations discussing specific subject matters with classmates and their instructors (Jiang, 2018). This system can also be designed for self-paced individual study even when the classroom participants cannot be available at the same time, which given both instructors and students more time to develop and refine their contribution. With the freedom

of choice, learners can acquire their desired knowledge or skills closely related to their own learning goals (Ruth C. Clark, Richard E. Mayer, 2016).

Perceived Credibility (PC)

In this research paper, perceived credibility (PC) designates the perception of protecting learners' data against illegal entrances. According to Hoffman and partner (1999), Perceived credibility (PC) is security and privacy. Security is protecting information from unsanctioned interventions. Privacy is defined as the protection of a variety of data that is collected while users interact with the Internet. Perceived credibility (PC) has a positive impact on perceived usefulness (PU) and perceived ease of use (PEOU) (Oni and Ayo, 2010). Hence, to point out the effect of perceived credibility, the study proposes the following hypotheses:

H1: Perceived credibility has significant impact on perceived usefulness

H2: Perceived credibility has significant impact on perceived ease of use

The internet provides too much information which can confuse and overwhelm its users (Henry, 2005). To assist with information management, researchers cast around for suggestions and follow them (Smith, Menon, & Sivakumar, 2005). Many web pages developed their system to provide recommendations for searchers (Barwise, Hammond, & Elberse, 2002; B.-D. Kim & Kim, 2001). The information then is approved by the recommendation systems and therefore accepted and used by the users.

Satisfaction (S)

Satisfaction is defined as a positive emotion that facilitates learning and contributes to academic achievement. This is can be tested on learners' willingness to continuously embody the essence of E-learning, built on the foundation of prepared materials on LMS and comprehensible transmission of instructors. Satisfaction stemming from e-learning acts as a key determinant to assess learning outcomes and experiences among students (Yukselturk & Yildirim, 2008). Satisfaction influencing E-learning is defined as a student's positive attitudes and feelings toward E-learning (Wixom and Todd, 2005). In this research, we follow the same notation of Wixom and Todd (2005, p: 90), relating to satisfaction, indicating that satisfaction would affect perceived usefulness. The more students are satisfied with E-learning, the more students feel positively towards internet-based learning in terms of disseminating knowledge and improving academic performance. Once deemed inferior to face-to-face classrooms, technology advances are now the changing face of education. Students find online learning systems easy to use, as they are not intimidated by being in a lecture hall with hundreds of people and are instead eased by the comfort of their room. In some cases, some students even excel in online learning rather than direct interaction in traditional classes (Michele T. Cole, Daniel J. Shelley, and Louis B. Swartz, 2014). From that, the hypotheses of this research the following:

H3: Satisfaction of students will affect perceived usefulness

H4: Satisfaction of students will affect the perceived ease of use

System quality (SQ)

System quality is a feature necessary to any information system, which monitors, measures, analyses, and evaluates the capability of a system to allow users to perform tasks safely, effectively, and efficiently. System quality responses to issues arising from the system, user interface, teaching material, and lecture content… (Seddon, 1997). System quality is evaluated by factors including reliability, data function, flexibility, and especially, ease of use (Delone and McLean, 2003). System quality usefulness (Lin & Lu, 2000). The hypotheses are suggested:

H5: The system quality affects positively perceived usefulness

H6: The system quality affects positively perceived ease of use

A satisfying and desirable study system is more likely to be chosen and frequently used by both teachers and students, this is determined by system quality (Delone & McLean, 2003). Any system quality is based on its usability, reliability, and efficiency. Usability is how accessible software or system is to its users; *to be understood, learned, and used*. (Abdulhakim Elmoawe Dreheeb, NurlidaBasir, NorasikinFabil, 2015). Reliability is how a system maintains its performance for a long period of time and still produces the same outcome (Papanikolaou & Mavromoustakos, 2008). Efficiency is the quality and performance that provide enough for the user's needs (Freeze, Alshare, Lane & Joseph Wen, 2010).

Facilitating conditions (FC)

Facilitating conditions are the availability and support of modern technology aimed to improve learning processes and increase the performance of education systems. It is critical to modify module structures in which learners know what to expect when moving from one unit to the next (Wolcott,1993; Carr, 2001). Some questions have been raised about the effectiveness of E-learning. Opinions are largely divided on whether technological and pedagogic knowledge can be applied in outlining and detailing online teaching materials.

Faculties of many universities attempt to modify lecturers' tutoring strategy to online learning systems (Rockwell et, al, 2003). Thus, for lecturers to be successful in providing online courses, higher education organizations should be more actively involved in developing online learning models and instructional methods. Facilitating conditions play an important role in the formation of perceived ease of use (Chang, Cheung & Lai, 2000; Chang & Cheung, 2001, Karahanna & Straub, 1999). In our research, facilitating conditions provide conditions for learners to access online courses uncomplicatedly. The list of facilitating conditions includes flexible information gateway for teachers and students, well-rounded curriculum and

effectively designed courses, availability of discussion boards and forum. The aforementioned conditions facilitate the development and easy provision of online learning courses. Hypothesis is proposed:

H7: Facilitating conditions for E-learning influence positively perceived ease of use

Perceived usefulness (PU)

Perceived usefulness is the extent to which the productivity of each individual is believed to have improved from using an information system (Davis, 1989). Perceived usefulness has close correlations with students' attitudes toward the E-learning system (Subramanian, 1994). In the same way, attitude and behavior toward E-learning are promoted by perceived usefulness (Norazah, 2008). Thus, this study suggests the following hypothesis:

H8: Perceived usefulness has an impact on attitude toward E-learning.

The market culture is changing where it is now putting more focus on the client than the provider, and education is now starting to focus more on the student. And the student is now more informed and learns to absorb information from many sources even from other students. The World Wide Web *was shifting from being a medium, in which information was transmitted and consumed, into being a platform, in which content was created, shared, remixed, repurposed, and passed along* (Stephen Downes, 2005).

Perceived ease of use (PEOU)

Perceived ease of use refers to learners' perceptions regarding the feasibility and manageability of personal experiences of online learning. The main idea behind these applications is to bring benefits and usefulness to the education industry. Perceived ease of use is the single most important determinant of authorization for use of online learning applications (Moon & Kim, 2001).

Learners' interaction with online learning requires a logical and comprehensible thinking ability (Davis, 1989). Perceived ease of use significantly affects learners' behavioral intention to continue using online education platforms. Therefore, it also contributes substantial influence on the positive attitude towards the usability of online education (Norazah & Amlus, 2005). Other scientific research papers have come to an agreement that perceived ease of use is related to perceived usefulness (Teo et al, 2008; Teo2011a). The hypotheses are suggested as follows:

H9: Perceived ease of use has a significant impact on perceived usefulness

H10: Perceived ease of use has a significant impact on attitude toward E-learning

Social networking media greatly affects the ease of use and perceived usefulness, therefore students and teachers who find social networking media

easy and simple have a higher chance to use e-learning (Ali Mohamed Elkaseh, Kok Wai Wong, and Chun Che Fung, 2016). An example of this is social networking has provided an evident positive impact on students' written and oral language skills (R. Harrison and M. Thomas, 2009).

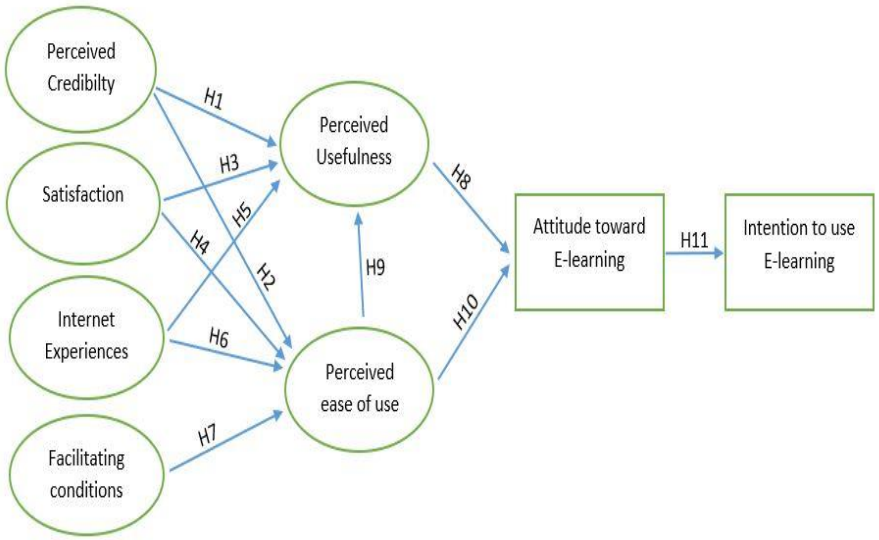
Attitude (A)

Learners' attitudes towards e-mentoring are defined as the response of perceived usefulness and perceived ease of use (Suki & Ramayah, 2010). Given the privilege to learn at their own pace, many students find online learning more useful and convenient compared to traditional schooling. For this reason, they are more likely to have positive attitudes toward E-learning. A positive mindset has the potential to boost students' willingness to subject themselves to virtual academic settings (Davis, 1989). If negative attitudes are not altered, students are less inclined to make collaborative efforts contributing to a more effective learning process. It is also suggested that attitude may be the decisive element in learning intentions (Liu et al, 2009). Therefore, for the research to be efficient, this study proposes the following hypothesis:

H11: Attitude influences considerably on the intention to use E-learning.

E-learning not suitable for students' level of computer can lead to frustration. A positive attitude toward online learning is greatly influenced by the computer course. Students with computer literacy will feel discouraged to take these classes. However, the practical helpfulness of computer when solving problems might open their idea to online studying (Thomas Michael Link and Richard Marz, 2006)

The research model



METHODOLOGY

The research model of "factors contributing to online learning and online learning development strategies post Covid-19" is based on The technology

acceptance model (TAM) of Bagozzi, Davis, and Warshaw (1989). The TAM illustrates how people came to acknowledge and embraced the idea of online schooling. The external variables include Perceived credibility, Satisfaction, System quality, Facilitating conditions. The purpose of this research to measure learners' satisfaction in distance-learning courses in the context of Covid-19.

After learning online, about 200 high school and university students were asked to complete the questionnaire on Google Docs forms. Using undisguised communication to create primary data of the research. There is a table of items in the research model and a five-point Likert scale with response anchors ranging from 'Strongly Disagree' to 'Strongly Agree' used to measure each item. To create a table of the questionnaire, secondary data is used to collect information. Google form includes demographic information and questions based on the research model.

FINDINGS AND RESULTS

We use SPSS and AMOS to analyze the data which was collected from the survey on Google Form.

Table 1.Summary of the demographic profile of respondents:

Items	Frequency	Percent (%)
Gender		
Male	90	44.6
Female	102	50.5
Other	10	5.0
Degree		
Highschool	42	20.8
University	160	79.2
Devices		
Laptop	98	48.5
PC	57	28.2
Mobile phone	47	23.3

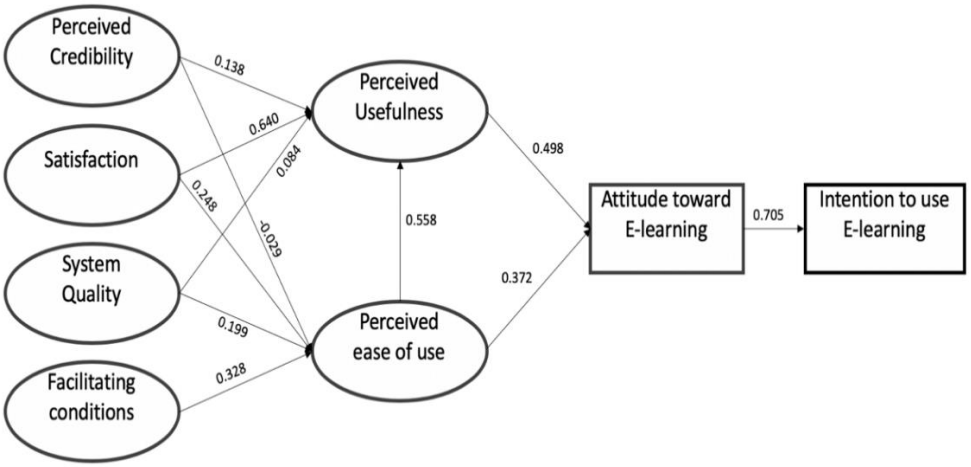
In the survey, we can see that there are 160 people in university (79,2% in total) and 42 students at the high school level (20,8%). Gender also has a diverse distribution in the total number of respondents. Females accounted for the largest proportion, accounting for 50.5%, followed by their male counterparts with 45.6% compared to only 5% of the other people who did not identify as either gender. Different types of technology devices were employed as online learning communicators. Nearly half of respondents admitted to using laptops to access online courses thanks to the utility of built-in features such as webcams and microphones, at 48.5%, Personal Computers are also commonly used, with 28,2% of students preferring learning at their choice. Last but not least, mobile phones are the least chosen education tool among K-12 and university students, accounting for 23.3% of the total.

The reliability statistic indicates that shows ability of the factors in the research varies depending on the results of the survey. All of these variables used in reliability calculations are greater than 0.7 which is standard reliability. That means we can rely on these figures to produce the most accurate results for our research.

Kaiser-Meyer-Olkin (KMO) Test shows how suited the data is for Factor Analysis. The KMO is required to be higher than 0.8, therefore, the KMO coefficient was 0.916. Through data analysis, EFA seems to produce good results.

Table 2. Regression analysis

Hypothesis	Effect	β	p-value	Result
H1	PC impacts on PU	0.138	0.008	Supported
H2	PC impacts on PEOU	-0.029	0.639	Unsupported
H3	S impacts on PU	0.640	0.000	Supported
H4	S impacts on PEOU	0.248	0.003	Supported
H5	SQ impacts on PU	0.084	0.179	Unsupported
H6	SQ impacts on PEOU	0.199	0.009	Supported
H7	FC impacts on PEOU	0.328	0.000	Supported
H8	PU impacts on ATE	0.498	0.000	Supported
H9	PEOU impacts on PU	0.558	0.000	Supported
H10	PEOU impacts on ATE	0.372	0.000	Supported
H11	ATE impacts on ITU	0.705	0.000	Supported



DISCUSSION AND CONCLUSION

The study took data from high school and university students in Ho Chi Minh City who have online learning interaction experiences. Four independent variables and four dependent variables in the research were suggested to have a significant impact on the decision of students' continual online learning behavior. The research uses a quantitative method by providing questionnaires for learners to assemble data. Approximate two hundred valid responses of learners were used to analyze the collected data and gained desirable consequence.

The reliability analysis, exploratory factor analysis (EFA) and, regression was used to get rid of inappropriate variables in the proposed research model and release the final result:

System quality does not affect perceived usefulness (p-value=0,179). Besides, perceived credibility is not defined as the factor influencing perceived ease of use (p-value=0,639). On the other hand, satisfaction is the factor having the strongest impact on perceived usefulness (β=0,64). The more satisfied learners feel about E-learning; the more usefulness learners believe to have gained. The facilitating conditions have the most effect on perceived ease of use (β=0.328). In addition, perceived usefulness has more influence on attitude toward E-learning than perceived ease of use (β=0,498). Learners will probably be more concerned about using more than easy usage of E-learning.

To sum up, this research paper was conducted with objectives: finding out factors influencing E-learning and based on those affected factors to develop E-learning after the Covid-19 pandemic. From the result of this research, factors like perceived credibility, satisfaction, facilitating conditions, and system quality are relevant to the development of E-learning. So, universities and high schools can depend on these factors to find online methods that are suitable for learners. Currently, E-learning is an extremely fundamental method during the Covid-19 pandemic. After the global epidemic disease, E-learning is believed to remain effective, affiliating with offline learning at classes. Hopefully, some suggestions based on our research will be useful to some high schools and universities. They will combine online courses with

offline courses to enhance students' academic knowledge. The affiliated method will be able to improve students' learning efficiency. It is recommended that lecturers are provided with useful instructional methods, pedagogic expertise to understandable lectures for learners. Online courses should pay attention to learners by being designed with clear and simple lessons so that they are not unpleasant to courses. Online lessons with the comprehensible content, specific chapter, the capability of teachers' giving clear and logical lectures will please learners. They are certain to take part in online classes when they feel satisfied the with useful and valuable things they receive from online courses. System quality of online learning pages like LMS should update frequently and avoid being interrupted when learners are in process of online studying. Finally, an educational institution should decide on secured and private online applications. Learners do not want to be collected their personal information by applications.

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APPENDIX: Questionnaire for the research paper

Perceived Credibility (PC)	
PC1	E-learning would not divulge my privacy
PC2	Information and News on E-learning system are more credible
PC3	E-learning system kept my information confidential
PC4	I would find E-learning reliable in conducting my learning transactions
System quality (SQ)	
SQ5	The e-learning functions are adequate
SQ6	The Internet speed when learning online is good
SQ7	The e-learning content is available
SQ8	The e-learning interaction is easier
Satisfaction (S)	
S9	I'm very satisfied with the information I received from learning online
S10	I am satisfied with using e-learning as a learning assisted tool
S11	My decision to learn online was a wise one
S12	Learning online would give me a better opportunity to explore the subject
S13	Learning online would give me a sense of self-control on my learning pace
Facilitating conditions (FC)	
FC14	When I need help to use the E-learning system, guidance is available to me.
FC15	I have the necessary knowledge to use E-Learning.
FC16	Learning online fits my learning style.
FC17	In general, the university has supported online learning
Perceived	

Usefulness (PU)	
PU18	Learning online will improve my learning performance
PU19	Learning online will make it easier to learn course content
PU20	I believe e-learning contents are informative
PU21	Learning online will allow me to accomplish learning tasks more quickly
PU22	I would find Online learning useful
PU23	The advantages of E-learning outweigh its disadvantages
Perceived ease of use (PEOU)	
PEOU24	Learning online is easy for me
PEOU25	It is easy for me to become skillful at using the E-learning system.
PEOU26	It would be easy for me to find information at E-learning.
PEOU27	Overall, E-learning system is easy to use.
Attitude toward E-learning (ATE)	
ATE28	Learning online is a good idea
ATE29	I have a generally favorable attitude toward Learning online
ATE30	Learning online is fun to do.
ATE31	Learning online provides an attractive working environment.
Intention to use E-learning (ITU)	
ITU32	I intend to learn online in conjunction with direct study in the next semester
ITU33	I intend to learn online to do different things, from downloading lecture notes and participating in chat rooms to learning on the Web.
ITU34	I intend to learn online to review the lessons I've learned.
ITU35	If asked, I would likely recommend online learning as an ideal learning form