

Barriers to Online Learning amidst Covid-19 Pandemic

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ABSTRACT

This study aimed to identify the online learning barriers of the students at Eastern Visayas State University- Ormoc City Campus during the COVID-19 pandemic. Specifically, it examines the difference between student's capacities for online learning, student's online learning barriers, and some of the student's demographic and technological characteristics. A cross-sectional study was used for a sample of 401 students. The instrument was a questionnaire containing demographics, access to technical services, study patterns, current living conditions, and views on online learning. Results found that of the 401 students, 373 (93 %) possessed a smartphone, and 311 (78 %) had mobile data to access online services. Under present conditions, only 243 students (61%) found themselves physically and mentally capable of engaging in online learning. The barriers were categorized as: personal, technical, institutional, and community barriers. The most commonly experienced difficulties were: the need to perform responsibility at home, the adaptation of learning styles, and limited space conducive for studying. There was no statistically significant difference in the students' perceived capacity for online learning by demographic and technological characteristics, but there was a statistically significant difference in online learning barriers among respondents by age, gender, and year level. Freshmen younger female students were seriously affected. There were common issues with the students in the unstable internet access. Students have encountered a variety of interrelated obstacles as they have sought to adapt to online learning. Schools and educators play a role in incorporating student-centered approaches, a role in overcoming these issues during and after the COVID-19 pandemic

Keywords

Barriers, Online Learning, COVID-19 Pandemic

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Introduction

In the Philippines, universities, schools, and colleges rely more on the conventional way of teaching which is the traditional set-up or face-to-face classes. Although several educational institutions have started a blended learning approach, the unforeseen spread of infectious disease caused by the coronavirus named Covid-19 frightened the human race. This situation challenged the world, in particular, with the education system, and led teachers and scholars to turn to online teaching. Many research organizations that were previously unable to change their traditional teaching method had no choice but to shift entirely to web-based education [1]

The global economy was deeply affected by the devastating and infectious epidemic of Corona Virus, also known as Covid-19. The educational system had shaken by this fear of public health issues, which resonates globally through the educational institution. The pandemic forced the temporary closure of both the private and public institutions. According to the researchers' assessment, it is not clear if it would be possible to return to regular teaching quickly. It will have negative consequences for learning opportunities, as the social gap prevails at this point. The entire teaching system (private or public) and even the government itself are finding ways to cope with this situation.

Immediate demand that our students, professors, teaching staff, families, communities, and the nation as a whole be preserved and rescued. E-learning is synonymous with a variety of claims. Versatility, accessibility, availability, and learning pedagogy are some of the reasons for online teaching. The method of online learning pedagogy is very applicable and very available in rural and remote areas of the world. Flexibility, for example, is one of the benefits of

the online learning system: the learner may plan and arrange a time for the learner to complete the course. Blended learning and the reversal of classrooms arising from the combination of technology and face-to-face teaching pedagogy; this set-up of learning experience would improve students' learning skills. Students will learn at any time and wherever, thus gaining new skills that will aid them in the process of lifelong learning. In this complex environment, the government also recognizes the rising value of the online learning environment [1]

Many countries are shifting to alternatives to distance learning, whether through the delivery of tangible packets of student materials or through the use of technology to facilitate online learning. There are real dangers because if you ask students to wait and watch videos quietly, to read papers online, or to scroll on slides, both of these approaches can be very isolated and didactic. Passive sitting and listening is the weakest form of learning, and this may be the form most students would take during school closures. No one, particularly those who are the farthest behind, is doing well.

Teachers have little to no notice of the closing and transition of their schools to online learning, which can be overwhelming for everyone. They also said that all sorts of products and goods are overwhelmed, and we see that educators begin to fight back and ask for support in looking through all the tools to find those that are quality. At around the same time, teachers are like the rest of us in that as mothers, dads, aunts, uncles, and grandparents; they experience this mysterious new world. They aim to deal with their own lives and to look after children to find new ways to ensure that learning continues.

Progress had been in the number of students who have had access to computers and networking over the last decade or

so, making this transition to online learning inevitable. Around the same time, not every child has access to digital media or internet connectivity at home, and we need to ensure that these children do have access to learning resources. It means that learning tools continue to be available in any form of computer, and that means that we need to find a way to reach children who have no access to them [2].

Review of Related Literature

Most concepts, such as studying online, teaching online, web-based pedagogy, and blended or mixed learning, have one thing in common. It has the freedom to use a network-connected computer that enables learning from anywhere at any moment, at any cost, through any means [3] Online learning sometimes defined as an instrument that able to make or process of educating and studying, which is more on student-centered type of education, more imaginative, and much more versatile. Learners can communicate with their teachers or instructors or even with their classmates for collaborative activity; they can do this independently in these settings [4]

The simultaneous learning environment is composed of live conversations where educators and students have continuous cooperation, but no adequate coordination of offbeat learning circumstances and momentary feedback is available. Learning material is not open as live workshops or courses in such a learning climate; it is accessible across different learning structures and discussions. Under such conditions, moment criticism and quick reaction are impractical [5]

Simultaneous learning can provide a lot of assets for social interaction. The online diversion required amid this savage infection were a) video conferencing of in any event 40 to 50 understudies is conceivable, b) it is possible to have discussions with understudies to have natural lessons, c) good web associations, d) the lectures are currently on phones and not just PCs, e) the ability to replay recently shot talks, and f) it is anything but different [6]

For online schooling, there are numerous advancements accessible, yet frequently they cause various troubles or boundaries. These difficulties and concerns identified with advanced innovations fluctuate from introducing mistakes, establishment issues, login issues, sound and video issues, etc. Understudies regularly believe that web-based educating is dull and firm. There are so much time and adaptability for web-based; discovering that understudies never have the opportunity to do it. The individual center is a significant test confronting web-based learning too.

Understudies need two-way contact that is difficult to implement now and again. Until students practice what they realize, the learning cycle cannot accomplish its maximum capacity. Frequently, online material is all-scholastic and doesn't urge understudies to handily practice and study. The substance of the Mediocre Course is likewise a concern. Understudies concur that the absence of culture, innovative issues, and trouble in deciphering encouraging desires are the obstacles to web-based learning [7]

A research study found out that most students are not having enough training for an online learning environment to align their activities, jobs, and families with their studying. It also

found that students lack appropriate training for many online learning competencies; low level of readiness for online learning management systems [8]

Objectives of the study

This study aimed to identify the online learning barriers among students at Eastern Visayas State University- Ormoc City Campus during the COVID-19 pandemic. Specifically, it examines the difference between student's capacity for online learning, student's online learning barriers and some of the student's demographic and technological characteristics. The study gives administrators and faculty useful knowledge to resolve problems such as obstacles and criteria in the online distribution process to learn. The results of this study will help to recognize and resolve issues of the implementation related to the delivery of online courses.

Methods

The study uses a cross-sectional study design to identify the student's online learning barriers. A sample of 401 students from Eastern Visayas State University participated in the study. The instrument of the study consists of a 23-item questionnaire adapted from [9] The tool includes demographics, access to technical services, study patterns, current living conditions, and views on online learning. The online learning concept of Howlett was used to include, support, and improve learning for learners as well as learning by using electronic technologies and media.

Using 4-point Likert scale responses (strongly disagree - strongly agree), the participants rated the following statements: 1) they are physically and psychologically fit to study online for the entire semester, 2) if schools should give a passing grade to all their students (e.g., mass promotions) 3) if they had ample time and resources for online learning. We identified ten barriers to online education and asked respondents to choose how much they encountered in these barriers (never, sometimes, often, always). We searched for other obstacles in open-ended questions and asked the coping strategies the students had

After the approval of the Institutional Ethics Committee of the university, we then collect data from November 9 to 12, 2020. The collection of data used the Google Forms platform with online questionnaires; social media to recruit participants. We told students not to put any personal data on the scale to maintain animosity and recruited them through the help of some faculty members who forwarded them to online surveys. It took the students about 15 minutes to complete the survey. Data entry and analysis uses SPSS version 23. We used frequency count, percentages, mean and standard deviations for descriptive statistics and Mann U Whitney test, and Kruskal-Wallis test for inferential statistics with a p-value of <0.05 to be considered statistically significant.

Results

Demographic and Technological Characteristics

The study included 401 students at Eastern Visayas State University-Ormoc City Campus. The majority of respondents were 21 years and older (58.6%), mostly females (75.6%), taking up a Bachelor degree in Elementary Education (27.2%), juniors (24%), residents of urban areas (45.4%), and low-income families (65.1%). As far as technology is concerned, most respondents use only smartphones (93.0%) with mobile data access only (77.6 percent), spend 5 hours or less a week on the internet, and study 70.6% and 56.9%, respectively, before the pandemic (Table 1).

Table 1. Demographic and Technology Profile of the Respondents (N = 401)

Variables	Frequency	Percentage
Age		
20 & under	166	41.4
21 & over	235	58.6
Gender		
Male	98	24.4
Female	303	75.6
Course		
BSED-TLE	163	40.6
BSED-MATH	67	16.7
BEED	109	27.2
BSEE	62	15.5
Year level		
Freshmen	104	10.7
Sophomore	58	12.0
Junior	128	24.0
Senior	111	10.3
Location		
Urban	182	45.4
Rural	219	18.7
Income		
Low	261	65.1
Middle	140	34.9
Devices used		
Smartphone	373	93.0
Desktop	2	0.5
Tablet	2	0.5
Mixed	24	6.0
Internet access		
DLS	22	5.5
Mobile data	311	77.6
Pocket Wi-Fi	34	8.5
Mixed	23	5.7
None	11	2.7
Weekly Internet learning hours before pandemic		
5 hours or less	283	70.6
6 – 10 hours	96	23.9
11 hours or more	22	5.5
Hours spent studying before pandemic/week		
5 hours or less	228	56.9
6 – 10 hours	173	43.1

Capacity for online learning

Approximately 61% of students (n = 401) consider their ability to adapt to online learning under current conditions. The majority of respondents (88%) claimed that schools impacted by the COVID-19 pandemic should promote all students and said they had enough time and money to plan for next year's level. Almost 90% agreed that their teachers had the required skills and tools, while 40% suggested that their schools had the preparedness to support online teaching (Table 2).

Table 2. Summary of responses to Likert scale questions

Statements	Agree		Disagree	
	F	%	F	%
I'm able to study all for the online semester class physically and mentally.	243	60.6	158	39.4
School have adequate resources and time to prepare for next year's level.	354	88.3	57	11.7
Schools affected by the pandemic Covid-19 may give all their students a passing grade.	252	62.8	149	37.2
My teachers can teach online classes with resources and skills	352	87.8	49	12.2

Overall Students Online Learning Barriers

Online learning barriers have been rank from the most serious to the least serious (see Table 3). The single most significant barrier to online learning for 83 % of the students was the need to conduct household tasks and home duties (M = 4.46) followed by around 50 % who had difficulty adjusting learning styles (M = 3.67), insufficient room for study (M = 3.63), and need to look for additional income (M = 3.55). Unreliable or non-internet connectivity (49%) , lack of contact with educators (36%) , lack of basic needs (34%) and lack of technical skills (29%) has been very closely bundled as the next most serious barriers (M = 3.46, 3.38, 3.27 and 3.18). Respondents classified mental health problems (26%) and no device or restricted access (26%) as very low barriers to online learning (M= 1.26 and 1.02). These respondents always or often encountered these challenges (Figure 2). In three out of ten students, food, water, medicines, and safety were often or always lacking. The internal consistency of the ten online learning barriers in this study suggests acceptable internal consistency with Cronbach's $\alpha = 0.744$. This reliability coefficient is greater than the widely used acceptability of 0.070 (Nunnally, 1978).

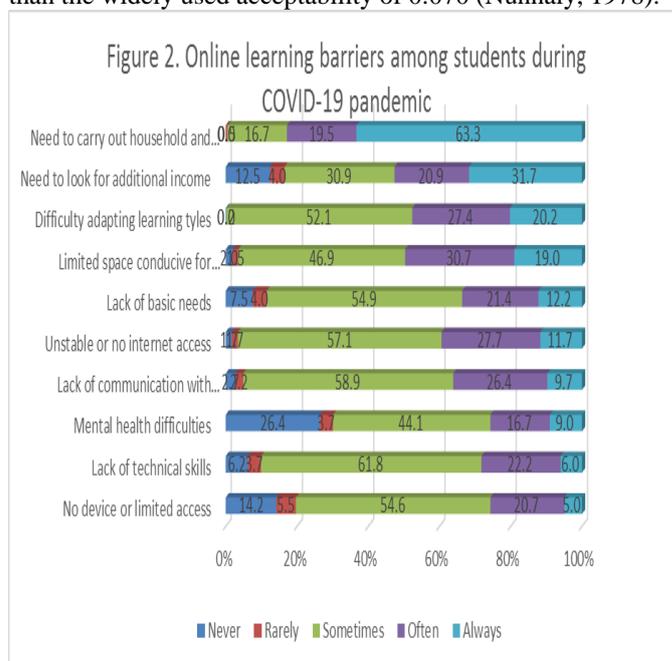


Table 3. Overall student’s online learning barriers

Barriers	Mean	SD	Rank
Need to carry out household and home duties	4.46	0.783	1
Difficulty adapting Learning Styles	3.67	0.800	2
Limited space conducive for studying	3.63	0.874	3
Lack of Basic Needs	3.27	0.986	7
Unstable or No internet Access	3.46	0.790	5
Lack of communication with educators	3.38	0.801	6
Mental health difficulties	2.78	1.26	9
Lack of technical skills	3.18	0.847	8
No computer or limited access	2.97	1.02	10
Need to look for additional income	3.55	1.31	4

Comparison between capacity for online learning and demographic and technological variables

Around 61 percent of students (n = 401) consider their ability to adjust to online learning under the present conditions. The students responses were similar, regardless of age (p = 0.933), gender (p = 0.702), course (p = 0.425), year level (p = 0.318), location (p = 0.169), and monthly family income (p = 0.411). Further, no technological factor was found to influenced the student self-assessment on device used (p = 0.886), internet access (p = 0.592), time spent on online learning (p = 0.447), and time spent studying (p = 0.514) (Table 3). This means that the capabilities of respondents to learn online is similar. This may be because everybody experiences the first time to learn online.

Table 4. Mann-Whitney U and Kruskal-Wallis test results

Variables	Category	Mean Ranks	P value
Age	21 & over	200.5	0.933
	20 & under	201.4	
Gender	Male	197.7	0.702
	Female	202.1	
Course	BSED-TLE	192.1	0.425
	BSED-MATH	211.8	
	BEED	208.4	
	BSEE	199.6	
Year level	Freshmen	191.4	0.318
	Sophomore	187.7	
	Junior	206.6	
	Senior	210.5	
Location	Urban	193.61	0.169
	Rural	207.1	
Income	Low	198.1	0.411
	Middle	206.5	
Devices used	Smartphone	199.9	0.886
	Desktop	222.2	
	Tablet	222.2	
	Mixed	213.9	
Internet access	DLS	185.8	0.592
	Mobile data	202.6	
	Pocket Wi-Fi	210.5	
	Mixed	213.1	
	None	174.3	
Weekly internet learning hours before pandemic	5 hours or less	204.9	0.592
	6 – 10 hours	193.0	
	11 hours or more	185.8	
Hours spent studying pandemic/week	5 hours or less	203.8	0.514
	6 –10 hours before	197.3	

Table 5. Mann-Whitney U test, Kruskal-Wallis test and socio-demographic characteristics of students

Barriers	Characteristics					
	Age	Gender	Course	Year level	Location	Income
	20 & under	Male	BSED-TLE	Freshmen	Urban	Low
	21 & over	Female	BSED-MATH	Sophomore	Rural	Middle
			BEED	Junior		
			BSEE	Senior		
	Mean ranks (p)					
Need to carry out household and home duties	200.1	186.1	187.7	188.9	198.9	200.8
	201.6 (0.885)	205.8 (0.088)	225.9 (0.047*)	203.2 (0.049)	202.7 (0.701)	201.3 (0.965)
Difficulty adapting Learning Styles	212.6	190.8	199.9	210.8	206.9	200.7
	192.8 (0.064)	204.3 (0.272)	216.0 (0.630)	188.5 (0.071)	196.1 (0.311)	201.6 (0.933)
Limited space conducive for studying	200.3	188.3	198.8	198.8	203.2	206.7
	201.5 (0.914)	205.1 (0.179)	209.9 (0.414)	209.9 (0.414)	199.2 (0.712)	190.3 (0.146)
Lack of Basic Needs	192.9	206.5	196.4	190.8	199.2	215.9
	206.7 (0.194)	199.2 (0.549)	213.6 (0.648)	188.7 (0.207)	202.5 (0.751)	173.2 (0.000*)
Unstable or No internet Access	204.6	196.0	195.5	209.6	197.4	206.3
	198.5 (0.562)	202.6 (0.584)	190.8 (0.358)	213.2 (0.015*)	204.0 (0.526)	191.2 (0.163)
Lack of communication with educators	207.6	193.7	201.7	208.3	191.0	201.7
	196.3 (0.277)	203.4 (0.415)	210.0 (0.102)	216.6 (0.022*)	209.3 (0.075)	199.6 (0.844)
Mental health difficulties	223.4	180.8	193.7	221.2	207.6	192.6
	185.1 (0.001**)	207.5 (0.036*)	211.6 (0.075)	199.5 (0.044)	195.6 (0.274)	216.7 (0.036*)
Lack of technical skills	218.4	191.7	194.7	218.0	199.1	199.2
	188.7 (0.004**)	204.0 (0.293)	209.7 (0.192)	199.5 (0.084)	202.6 (0.724)	204.3 (0.634)
No computer or limited access	201.7	193.6	193.0	198.4	183.7	205.1
	200.5 (0.905)	203.4 (0.425)	208.1 (0.308)	208.6 (0.650)	215.4 (0.003*)	193.4 (0.291)
Need to look for additional income	176.6	223.6	196.1	174.1	189.4	216.4
	218.2 (0.000**)	193.7 (0.021*)	191.2 (0.605)	212.2 (0.017*)	210.6 (0.058)	172.3 (0.000*)

Also, the need for additional income (p < 0.021) is significantly higher than that of females, with females suffering higher mental health problems than males (p = 0.036). On the other hand, the course of the respondents revealed a significant difference between TLE and Math students to perform their household and home duties. Post hoc test revealed Math students showed more household tasks than the TLE students (p = 0.014).

At year level, first-year students had more mental health issues while juniors wanted only stable internet access, but both needed less income than the seniors. In comparison, students living in rural areas need more computers and internet connectivity than those living in urban areas. Similarly, students with low-income families needed to

pursue extra income, often to always without basic needs, but the positive news is that they encounter fewer mental health problems than students with middle-income families (Table 3). Most students use smartphones, while others use a combination of smartphones and computers, but all of them need a secure internet connection.

Discussion

This study aimed to identify the online learning barriers of the students at Eastern Visayas State University- Ormoc City Campus during the COVID-19 pandemic. The study gives administrators and faculty useful knowledge to resolve problems such as obstacles and criteria in the online distribution process to learn. The results of this study will help to recognize and resolve issues of the implementation related to the delivery of online courses.

The study found that students have identified many barriers in adaptation to online learning in the COVID-19 pandemic, regardless of location or demographic subgroups. The student's perceived capacity for online learning was not statistically significant by demographic characteristics in this study. The identified barriers were classified as personal problems and problems with the technical and online system. However, there is a statistically significant difference at the .05 level in online learning barriers among respondents by age, gender, and year level on mental health issues for younger freshmen females being affected. Personal issues on the need to work for added income was also found significant for age and gender with older males who badly needs it. There were common issues with the participants in the unstable internet access.

The benefit of distance learning is the ability for anyone to learn from anywhere. Online and distance learning methods provide the convenience of time and space since students and teachers need not be physically in the classroom and need not have to be together in time as well.

Online and distance learning methods make it possible to study at colleges and universities across the globe. Today, the Internet allows distance learning to occur in real-time. Teachers can compress live video conferencing to reach students who are unable to attend classes because of time or distance.

Each individual has more flexibility to operate on their speed and schedules and can be flexible, open, and convenient. It can also save online students the cost of travel. Moreover, online education may cost less than conventional on-site education [10] Administrators may increase the cost efficiency of higher education [11] Institutions can save time and resources; teachers can update and revisit their courses readily [12-14]. Therefore, online learning is increasingly popular.

While online and remote learning had obvious advantages, some issues need to be considered. While technology is an integral part of a remote learning program, it can also be one of the problems of remote learning. Live interactions between students and instructors are one of the most commonly reported barriers [15-17] Owing to multimedia equipment or Internet connectivity issues, the instruction can be delayed or improperly relayed

Previous studies showed that the majority of students had a negative view of online learning in recent single-center

studies in India and Pakistan [18, 19]. A related Indonesian survey has shown that many people are worried about the lack of contact and the difficulty in focusing and understanding online concepts [20].

Before the COVID-19 pandemic, Philippine schools never needed online learning. The Guidelines of the Commission on Higher Education have not laid down criteria and specifications on the minimum level of support for online learning [21, 22].

We have shown that the number of students with restricted access to technology is not small. One in five students had no computer, and the same proportion had to depend on pre-paid access to mobile data. Around one in 20 used a smartphone alone. The students' access to online information, like other developing nations, has been limited by power interruptions, poor infrastructure, and internet costs [20, 23-25]. It is striking that students did not see such technical constraints as the key obstacles, as shown in Figure 2. It indicates that during the period of the pandemic, students managed to tackle these obstacles in some way

Our data support the continued norm in education for conventional teaching methods (i.e., teacher-led, classroom-based learning activities). Nearly three-fourths (71 percent) of respondents suggested a minimum of five hours in their weekly internet learning hours before the pandemic. As a result, it was difficult for students to suddenly alter curricula, requiring a simultaneous modification of learning styles. Those who spent less time online researching before were less likely to agree to deal with this.

It also indicated in our study that conventional learning methods (e.g., teacher-led, classroom-based learning) remain normal. Nearly three-fourths (74 %) estimated that five hours or more were not allocated for self-directed learning in their weekly schedules before the pandemic occurred. Therefore it was difficult for the students to alter the sudden program, which involved simultaneous changes in the styles of learning. Those who previously spent less time learning online would less likely agree to do so.

More time spent at home was clearly not inherently equal to greater time spent at academic level. Students were not able to focus because they were continually subjected to family conflict. Some find it difficult to reject conversations with parents or siblings, even in the absence of a domestic dispute. Cohesiveness and reciprocity characterize Philippine families and the most educated members of the family are often expected to be carers or heads of households [26-28]. Many students were relegated to this role in the present health crisis. In addition the physical space remains important as the learning environment can be interactive. It was a pleasure to have a quiet study area with the same classroom or library comfort not at everyone's disposal.

Students questioned their internet subscription and needs; closed down of businesses that led to some parents losing their jobs. According to these answers, lower-income students feel less able to participate in online learning. Some said they could not afford to enroll in the next school year because of the costs.

About 65% of the participants were members of families with monthly income of less than 11,000 pesos. Increased costs for online learning need to be estimated. Video lectures alone can already consume around 480 MB of

mobile data an hour [29]. A student who watches videos for four hours will have to pay 45 pesos daily at a prevailing rate of about 23 pesos per GB. To put it in perspective, the minimum daily wage in the Philippines ranged from 230 and 450 pesos in May 2020[30].

Our concept illustrates that the barriers to online learning in developing countries are multi-factorial and closely linked, particularly in the context of a world health problem. These results from the study, we proposed the following recommendations for schools:

1. Conduct a survey of the needs of students to identify those with restricted access to technical services and basic needs.
2. Adopt a predominantly asynchronous mode of delivery of content with limited technological and data requirements. Compatibility of smartphones remains important.
3. Maximize the use of selected online services available free of charge or with an institutional subscription during the transition process. To maintain an online program, assist and train the Faculty on Content Development, Management and Delivery. Invest in technological support for this.
4. Maintain open lines of contact between administrators, educators and students (e.g., through online town hall meetings). Guidelines and objectives must be transparent, with provisions for improving or worsening the condition of the pandemic.
5. Build opportunities for constructive interaction between peers and mentors.
6. Avoid cognitive overload. As with classroom instruction, ensure that evaluation methods are compatible with the intended outcomes.
7. Apply leeway to students who have extra home obligations.
8. Establish mental health services and provide proactive psychosocial help to students.
9. Offer grants to offset the economic effects of the pandemic. Promote increased government subsidies.
10. Establish bridge programs and plan for a smooth return to internships. Consider the construction of simulation laboratories and other facilities that will enable face-to-face learning with social distances.

A similar/parallel study may be conducted to further establish any enablers and barriers to learning online by using varied samples, variables, and selecting more than one school or university.

While the study has made a significant contribution to the identification and resolution of implementation issues related to the delivery of online courses and can be used by government, school administrators and faculty to learn, the study still has some limitations. First the study was administered online and is only open to students with Internet access and prevents significant sections of the population from participating. Second, the participants belonged to a single university

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