Analyzing Students' Perspective of the Learning Management System Moodle at the University of Belize

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Abstract

Management Information Systems (MIS) is the study of people, organizations, technology and the relations among them. Learning Management Systems (LMSs) are very commonly utilized in upper level education. In addition, a large part of the exploration on LMSs has had an innovation centered or has been restricted to investigations of appropriation. To exploit the potential related with LMSs, research that tends to the part of LMSs in learning achievement is required. Task-technology fit is one factor that has been appeared to impact both the utilization of information systems and their presentation impacts. Recently, the University of Belize had to transition almost instantly to delivering their courses fully online at the expense of the Covid-19 pandemic. The study depicted in this paper utilized the innovation to execution fasten as a structure to address the subject of what task–technology fit means for the exhibition effects of LMSs. The outcomes offer solid help for the significance of undertaking innovation fit, which affected apparent effect on learning both straightforwardly and by implication through degree of usage. The task-technology fit on LMSs showed that students agreed that Moodle benefited them in advancing the productivity of their studies online. When it came to expectations, Moodle E-learning positively impacted the learning experiences of UB students. It was also agreed that students feel comfortable when their lecturers choose Moodle to improve their studies. Online quantitative questionnaire created in Google form were used to collect data from UB students and applied research was chosen for this study.

Keywords: Moodle, Learning Management Systems, Management Information System, Task Technology Fit

Introduction

"One of the most important advances in the use of information technology (IT) in universities over the last decade has been the use of learning management systems (LMSs) to aid the teaching and learning process," (Coates, James, & Baldwin, 2005). "The uproar of the COVID-19 pandemic began in March of 2020," (Timeline: WHO's COVID-19 response, 2020). Quickly finding its way to Belize, the coronavirus drastically changed the way of life for all Belizeans, including students. Since then, there has been a transition into a new form of normalcy. With this transition, came the avid use of e-learning which is a virtual and electronically supported learning that is dependent on the internet for the interaction and

distribution of class materials between students and lecturers. In a more in depth light, Arora (2019) suggests that e-learning constitutes the use of the World Wide Web, email, chat, audio and video conferencing all delivered over computer networks for the sole purpose of facilitating learning. This kind of information system is often referred to as a virtual learning environment (VLE) or an e-learning environment. LMSs are often incorporated through an institution, faculty, or school, and then adopted by teachers who use them in a number of ways to upkeep course management and student learning.

Online learning is not new to some Belizeans as it is used at tertiary level institutions like Galen University and the University of Belize, to name a few. It is now; however, the only opportunity for higher learning for all Belizeans as it is the most feasible modality during the pandemic. Many of those who are new to the online experience find it unpleasant. Studies have suggested a variety of issues; however, these issues were not categorized or combined under any topical classification to provide online educators with an organized overview of the issues. "However, since the COVID-19 pandemic, which suddenly emerged last year during an active school period, there are limited published articles addressing the issues and challenges of transitioning from traditional face-to-face to online delivery formats," (Richardson & North 2020). The effects of the sudden switch from face- to- face education to online platforms has impacted students' learning and experience at the University of Belize.

It is necessary to conduct research on the importance of LMSs in learning in order to comprehend their effect and maximize their ability. Research into the factors that influence the use of LMSs, as well as research into the factors that influence the impacts of LMS use on student learning is necessary. This paper considers the role of e-learning in LMS success, and addresses the question of how it influences student performance impacts of LMS.

This study is to determine and highlight the effects of the transition to online learning based on the students' responses to the change of their perceptions of the learning management system Moodle.

Purpose of Study

The purpose of this study is to analyze "How beneficial Moodle is and how the transition to e-learning has impacted the student learning and experience at the University of Belize." The switch to e-learning is trickled down into two subcategories online courses and online platforms. "Online courses offer the promise of access regardless of where students live or what time they can participate, potentially redefining educational opportunities," (Erix Bettinger, 2017). Furthermore; online platforms offer promise, through artificial intelligence, by providing the optimal course pacing and content to fit each student's needs and therefore improving educational quality and learning through popular platforms used by the University of Belize such as: Moodle, Google Classroom, Google Meet and Zoom.

Significance of Study

As the world adapts to the "new normal", and as time progresses, it has become evident that we cannot escape online learning. Though it is not yet popular in Belize, online platforms help to eliminate barriers forced upon us by the global pandemic. The aim of this study is to inform readers, which includes but are not limited to the Management of the University of Belize, the public, and students, about the impact of the sudden transition to e-learning. These effects may include but are not limited to psychological and general perceptions of students' views on the e-learning platform Moodle. This education will establish, in a more renowned way, the pros and cons of e-learning in Belize. Decision makers can then effectively market the pros while cushioning the cons to reach a more desirable compromise with their stakeholders. Universities can also use the results to establish proficiency in online education for pursuance by Belizean students. Furthermore, the research will aid to increase the understanding of online learning at the University of Belize and further elaborate on existing knowledge. Additionally, the study will provide new resourceful practical recommendations to the Management of The University of Belize to incorporate into their planning and decision-making process to improve student life and online learning experiences for both teachers and students.

Literature Review

Learning Management system (LMS) according to (Ling, 2013), is a digital software that allows students to connect with lectures. Using LMS, interaction occurs through devices that encourage an active participation with students either having a two-way online session or through prepared resources. To investigate an individual's acceptance behavior on the learning Management system, two models were suggested by researchers. These models include task technology fit (TTF) and Technology acceptance model (TAM).

Task Technology fit was introduced in 1995 by Goodhue and Thompson. The theory focuses on the level in which technology is beneficial in assisting an individual in completing his or her task. As a metric of task technology fit Goodhue and Thompson (1995), developed a connection with each user as efficiency, compatibility, easy access, output punctuality, and systems reliability. Technology acceptance Model was developed by David (1989). This model is very popular as it is used to predict use and acceptance of information systems and technology by individual users.

A study carried out by Basil C. E Oguguo et. al. (September 2020) main purpose was to determine the effect of learning management systems on Student's performance in educational measurement and evaluation. The findings from the study revealed that students taught using LMS (Moodle) performed better than those exposed to CAI4ME Package. Researchers recommend that LMS packages such as Moodle should be learnt and used by lecturers of educational measurement and evaluation. Using LMC has a significant benefit that includes: Learning automation, analyze learning patterns, using a variety of learning materials, access learning on the go and flexibility in learning pathways. A study carried out by Firat, M. (2016) sole purpose was to investigate the effects of undergraduate students' LMS learning behaviors on their academic achievements. The research concluded that majority of the students agreed that LMS increases achievement as it is effective, easy access, access to two way interaction, reinforcement, attractive design, and social media support. The use of technology in the classroom has led to a wave of more LMS in education. Within today's society, students have the opportunity to grasp important concepts with a focus on their individual learning style.

To confirm this information, a journal article conducted by Kathryn A. Holmes (2018) summarizes that higher education institutions routinely use Learning Management Systems (LMS) for multiple purposes; to organize coursework and assessment, to facilitate staff and student interactions, and to act as repositories of learning information. Students rated the contributions to their learning more highly than staff, however, both groups held similar views with regards to the effectiveness of LMS tools to enable interactivity. Another study was carried out by A.K.M Najmul Islam and Nasreen Azad (2015) discussed the satisfaction and continuance with a learning management system. The purpose of the article was to compare perceptions of educators and students with a learning management system (LMS). Thus, LMS is a real time platform that allows students and teachers to chat while conducting live video or audio classes. Open-source solutions like Moodle provide the most flexibility. Learning management system can increase adoption rate, minimize costs, and cut down the training time substantially.

Methodology

Participants

Moodle is the commonly used Learning Management System (LMS) and was the LMS used for this study. The participants for this study are students from the University of Belize using Moodle E-learning for their online studies.

Sample size

The sample size used for the research is 418 students enrolled at the University of Belize, Belize campus, and semester 2020-21. The research was done in the form of a quantitative questionnaire.

Population size

"All students at the University of Belize, which consists of over 4,800 students," (University of Belize , 2017).

Procedure

The length of the study was about halfway through the semester. Students registered in more than 10 different undergraduate degrees were targeted to give their feedbacks on their use and experience of Moodle E-learning. Communications with participants was done via the University of Belize email system, where the invitation link to complete an online questionnaire was sent to them. The questionnaire was designed to take about 8 minutes to be completed. Participants' responses were anonymous and students voluntarily completed the questionnaire.

Measurement

Items that were used to measure the concepts of interest for the LMS domain were gattered from past research on Moodle E-learning to start off with. However, with Moodle coming into full use, the questions were adjusted. The questionnaires were verified by group members and changes were made where necessary. The Questionnaire consisted of seven (7) sections. The first section asks basic student background information. The second section asks students about their learning preferences. The third section asks about students learning experiences prior to using Moodle. The fourth section asks about task-technology fit. The fifth section asks about the expected consequences of LMS usage. The sixth section asks about the perceived impact that Moodle has on students learning. The final section asks about consumerization attitude. Task-technology fit was measured from a number of aspects. Aspects that looks at, if the task-technology fit was easy to use, the quality of information provided, the effectiveness it has on learning and the efficiency of using Moodle. The learning preferences of Moodle E-learning were measured using a scale of 7 points from strongly disagrees to strongly agree, where students were asked if they preferred online or face-to-face learning. The expected consequences of using LMS were measured by asking students if using Moodle has increases their productivity in learning and the perceived impact on learning was measure by asking students how Moodle have benefited their studies online, they had the option to measure on a 7 point scale from strongly disagree to strongly agree. Consumerization attitude was measure by asking students if their teachers had the option to choose Moodle as their main teaching tool, then would their studies online will be much effective. This was also measure using a scale of 7 points from strongly disagree to strongly agree.

Figure 1: The Constructs

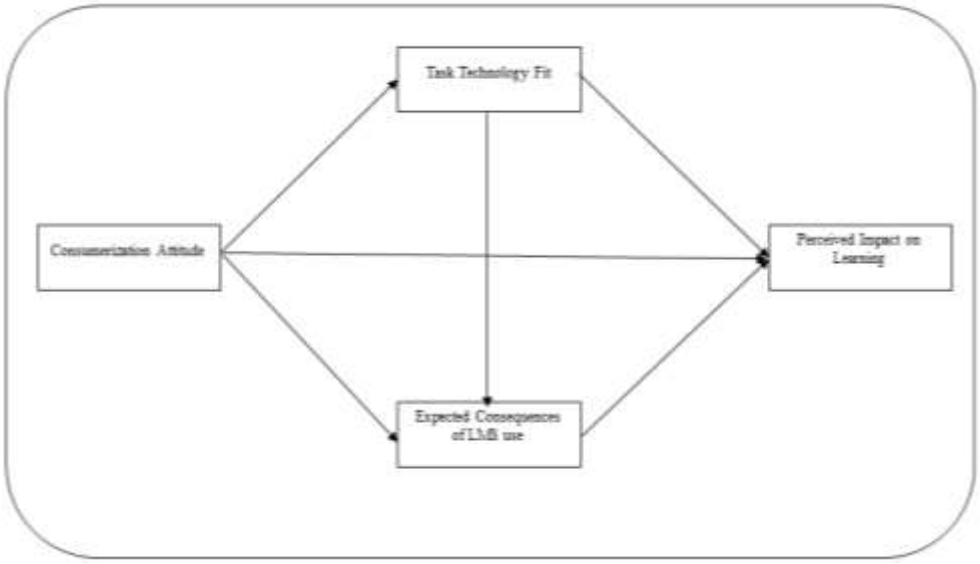


Table 1. Measurement items used for Questionnaire.

Construct	Survey questions	Source
Task-Technology Fit	TTF1: Moodle fits well with the way I like to study online. TTF2: Moodle is compatible with all aspects of my online study. TTF3: Moodle is easy to use. TTF4: Moodle is user friendly. TTF5: It is easy to get Moodle to do what I want it to do. TTF6: Moodle is easy to learn. TTF7: It is easy for me to become more skillful at using Moodle. TTF8: New features of Moodle are easy to learn. TTF9: Do you think the output from Moodle is presented in a useful format? TTF10: Is the information from Moodle accurate? TTF11: Does Moodle provide you with up-to-date information? TTF12: Do you get the information you need in time? TTF13: Does Moodle provide output that seems to be just about exactly what you need?	UB
Expected Consequences of LMS Use	ECLU1: Using Moodle for online classes will help me to accomplish my study more quickly. ECLU2: Using Moodle for online classes will improve my performance in units. ECLU3: Using Moodle for online classes will increase my productivity. ECLU4: Using Moodle for online classes will enhance my effectiveness in my program of study. ECLU5: Using Moodle for online classes will make it easier to complete my learning tasks. ECLU6: Using Moodle for online classes will give me greater control over my learning tasks. ECLU7: Overall, I think that Moodle will be useful in my online studies. ECLU8: Using Moodle will improve the quality of my online learning.	UB
Perceived Impact on Learning	PIM1: Moodle has a large positive impact on my effectiveness and productivity as a student in online classes. PIM2: Moodle is an important and valuable aid to me in my online studies. PIM3: I learn better online with Moodle than without it.	UB
Consumerization Attitude	CA1: If my teacher could choose their own Learning Managements System it would fit well with learning online. CA2: If my teacher could choose their own Learning Managements System it would fit well with helping me to be efficient in learning online. CA3: If my teacher could choose their own Learning Managements System it would be compatible with my online learning. CA4: If my teacher could choose their own Learning Managements System my online learning performance would	UB

	improve. CA5: If my teacher could choose their own Learning Managements System my online learning productivity would improve. CA6: If my teacher could choose their own Learning Managements System I would work faster while learning online.	

Methodology Difference:

The methodology that was used in this research is just slightly different from the previous literature. In this research we used quantitative data collection, whereas in the previous literature Qualitative data collection was used. In the previous literature included a hypothesis; however in this study we did not use any hypothesis, since we are moving into applied research.

Assumptions and Limitations:

There weren't much assumptions made in the previous literature, except where the researchers assumed that UB's information system Moodle was put into place to improve E-learning at the University of Belize. Some of the limitations observed from the previous literature included: limited information, small sample size of UB students, limited time to complete the research, and some students denied doing the questionnaire. Some of these limitations arise, because the students were not satisfied with Moodle, so they chose not to participate. Students recommended for UB to improve their internet service to have better access to Moodle. However; students had hope that Moodle was going to be improved in the future to make it more effective and efficient. The researchers stated that they had many limitations, however; they were still able to collect data for their research.

Data Collection

The data for this study were collected from the students of the University of Belize. The study sample was broad because any student of the University of Belize could have responded. A total of 418 questionnaires were distributed and returned by the students, resulting in a 100% response rate. Table 2 lists the characteristics of the students. In comparison to male participants (37.6%) female participants made up a higher proportion of the completed study of approximately 62.7 percent. 50.24 percent of the participants were between the ages of 19 and 22. Individuals were enrolled in the program, with approximately 50.49 percent of them being FMSS students. 50.24% of the participants were aged 19-22 years. The program enrolled in was composed of individuals, approximately 50.49% of whom were FMSS students. The participants were mostly pursuing Bachelors (64.0%); and approximately 39.01% of the participants are attending for their 2nd year.

Table 2: Characteristics of Students

Characteristics	Number	Percentage
Gender		
Female	261	62.7%
Male	157	37.6%
Age		
16-18	57	13.64%
19-22	210	50.24%
23-25	50	11.96%
26-30	52	12.44%
31-40	43	10.29%
>40	6	1.44%
Program		
FEA	89	21.6%
FMSS	208	50.49%

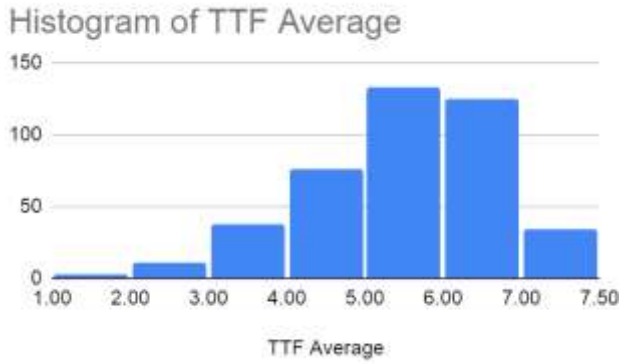
FHS	30	7.28%
FST	85	20.63%
Level of Education		
Associates	149	36.0%
Bachelors	265	64.0%
Student Year		
1st	102	24.46%
2nd	163	39.01%
3rd	89	21.34%
4th	63	15.11%

Data Analysis

The research was conducted via online surveys. The focus is on the 4 constructs namely: Task Technology Fit, Expected consequences of LMS use, perceived impact on learning, and Consumerization Attitude. It should be noted that this study is using applied research whereby we will be representing data in histograms. No hypothesis exists in this particular study. We obtained the following information from the online survey undertaken:

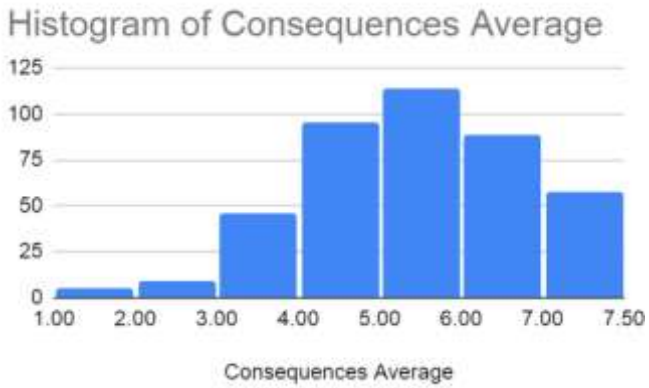
Section 1: All Responses

Histogram 1: Task Technology Fit



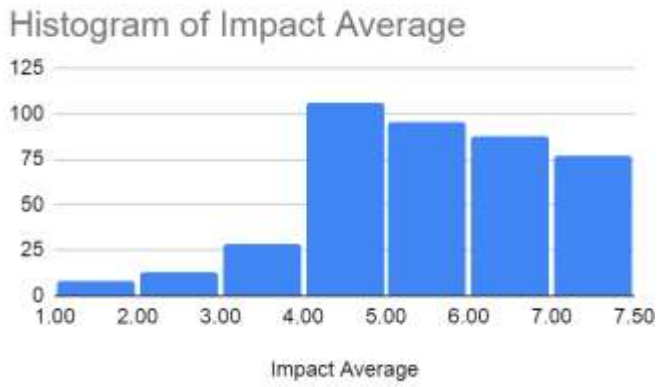
From the data collected from the survey, Histogram 1 shows that 133 participants agreed that the learning management system Moodle is fit for online teaching and it is also convenient and useful stated under the construct of Task Technology Fit, receiving a rating of 5-6 out of 7.5. In addition, 125 participants also strongly agree that the Task Technology Fit for online Teaching is good falling within the 6-7th measure on the scale. On the other hand, 76 participants neutrally agreed that Moodle was fit enough for online teaching, rating the task technology fit at 4-5 out of 7. Only 3 participants highly disagree that the learning management system Moodle was not fit for online learning, rating it at 1.

Histogram 2: Expected Consequences of LMS use



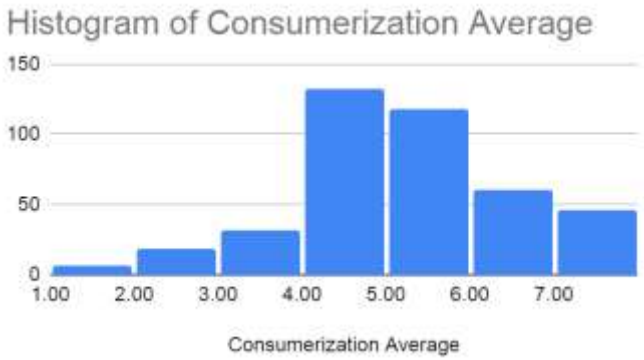
Histogram 2 shows that 114 participants strongly agreed that the learning management system Moodle enhances their performance and effectiveness when studying online, receiving a rating of 5-6 out of 7.5. Thereafter, 95 participants also agreed that the expected consequence of LMS use for online Teaching is neutral falling within the 4-5th measure on the scale. On the other hand, 89 participants strongly agreed that Moodle has enhance their performance in online learning rating the task technology fit at 6-7 out of 7. Only 3 participants highly disagree that the learning management system Moodle does not enhance their online learning abilities, rating it at 1.

Histogram 3: Perceived impact on learning



Histogram 3 shows that 106 participants neutrally agreed that the learning management system Moodle has a positive impact on their effectiveness and productivity as a student in online classes, receiving a rating of 4-5 out of 7.5. Thereafter, 95 participants strongly agreed that the Moodle has an important and valuable impact on their online learning, rating it within the 5-6th measure on the scale. On the other hand, 88 participants strongly agreed that they learn better with Moodle, rating their perception at 6-7 out of 7.5. However, 8 participants highly disagree that the learning management system Moodle does not have a positive impact on their online learning abilities, rating it at 1.

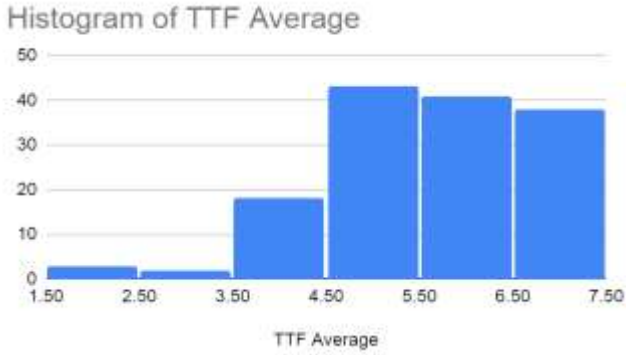
Histogram 4: Consumerization Attitude



Histogram 4 shows that 132 participants neutrally agreed that if their teacher could select their own learning management system then it would fit well with learning online, receiving a rating of 4-5 out of 7.5. In addition, 118 participants also strongly agree that if teachers choose their own LMS for online Teaching students' performance may improve, rating it within the 5-6th measure on the scale. However, 6 participants strongly disagree that teachers should not choose their own Learning Management System, rating it at 1.

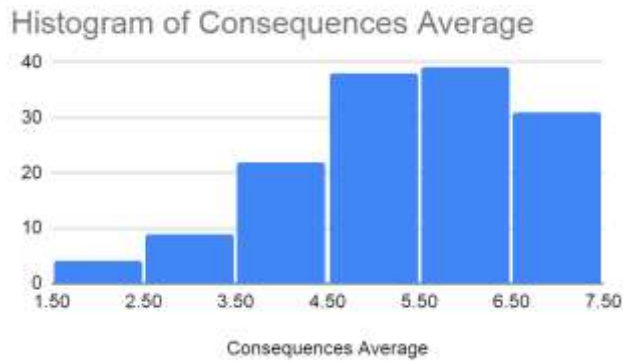
Section 2: Moodle Only

Histogram 5: Task Technology Fit (Moodle Only)



From the data collected from the survey, Histogram 5 shows that 38 students who has use Moodle Only agreed that the learning management system Moodle is fit for online teaching and it is also convenient and useful stated under the construct of Task Technology Fit, receiving a rating of 4.50-5.50 out of 7.5. In addition, 41 participants also strongly agree that the Task Technology Fit for online Teaching is good falling within the 5.50-6.50th measure on the scale. Following 38 participants that strongly agrees that Moodle was fit enough for online teaching, rating the task technology fit at 6.50-7.50 out of 7.50. Only 3 participants highly disagree that the learning management system Moodle was not fit for online learning, rating it at 1.

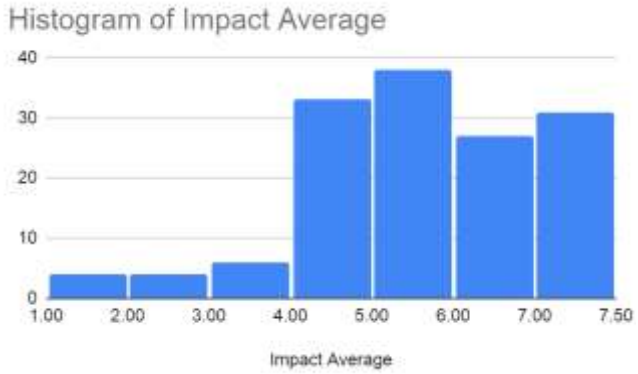
Histogram 6: Expected Consequences of LMS use (Moodle Only)



Histogram 6 shows that 39 participants who have only utilize Moodle for their online learning strongly agreed that the learning management system Moodle enhances their performance and effectiveness when studying online, receiving a rating of 5.50-6.50 out of 7.5. Thereafter, 38 participants also agreed that the expected consequence of LMS use for online Teaching is good falling within the 4.5-5.5 measure on the scale. 31 participants strongly agreed that Moodle has enhance their performance in online learning rating the task technology fit at 6.5-7.5 out of 7.5. Only 4 participants who have never used any other online

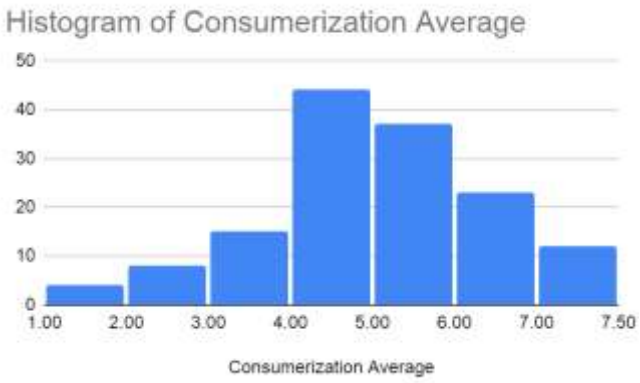
learning management system besides Moodle highly disagree that Moodle does not enhance their online learning abilities, rating it at 1.

Histogram 7: Perceived impact on learning (Moodle Only)



Histogram 7 shows that 33 participants who have only used Moodle neutrally agreed that the learning management system Moodle has a positive impact on their effectiveness and productivity as a student in online classes, receiving a rating of 4-5 out of 7.5. Thereafter, 38 participants strongly agreed that the Moodle has an important and valuable impact on their online learning, rating it within the 5-6th measure on the scale. On the other hand, 31 participants strongly agreed that they learn better with Moodle, rating their perception at 6-7 out of 7.5. However, 4 participants highly disagree that the learning management system Moodle does not have a positive impact on their online learning abilities, rating it at 1.

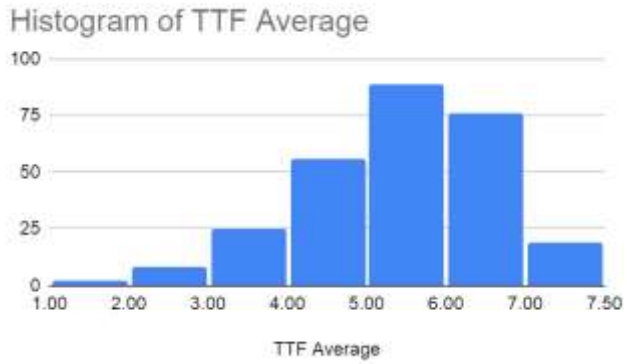
Histogram 8: Consumerization Attitude (Moodle Only)



Histogram 8 shows that 44 participants who have used only Moodle neutrally agreed that if their teacher could select their own learning management system then it would fit well with learning online, receiving a rating of 4-5 out of 7.5. In addition, 12 participants also strongly agree that if teachers choose their own LMS for online Teaching students' performance may improve, rating it within the 6-7.50th measure on the scale. However, 4 participants strongly disagree that teachers should not choose their own Learning Management System, rating it at 1.

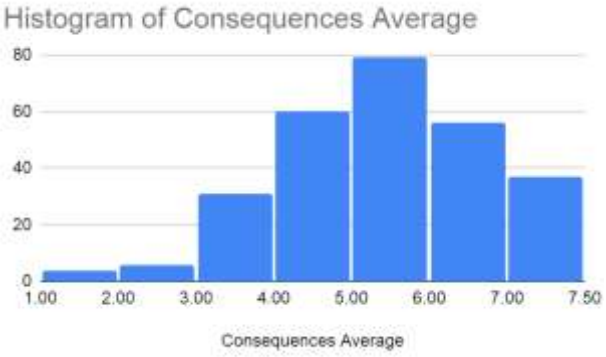
Section 3: Moodle +

Histogram 9: Task Technology Fit (Moodle +)



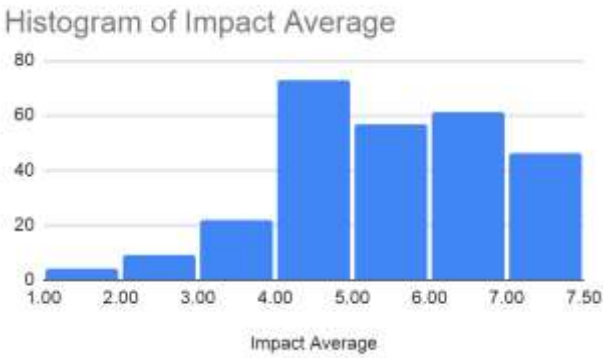
From the data collected from the survey, Histogram 9 shows that 89 participants who used Moodle and other LMS agreed that the learning management system Moodle is fit for online teaching and it is also convenient and useful stated under the construct of Task Technology Fit, receiving a rating of 5-6 out of 7.5. In addition, 19 participants also strongly agree that the Task Technology Fit for online Teaching is good falling within the 6-7th measure on the scale. On the other hand, 56 participants neutrally agreed that Moodle was fit enough for online teaching, rating the task technology fit at 4-5 out of 7. Only 2 participants highly disagree that the learning management system Moodle was not fit for online learning, rating it at 1.

Histogram 10: Expected Consequences of LMS use (Moodle +)



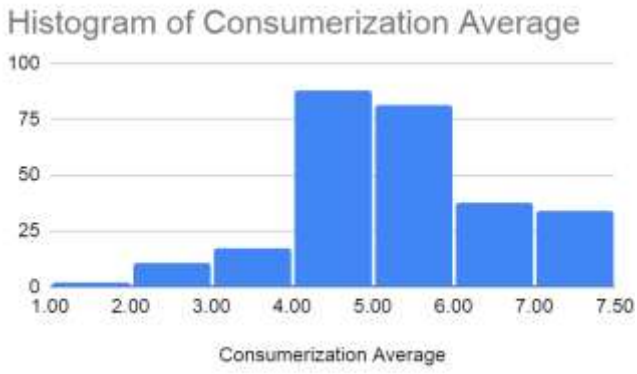
Histogram 10 shows that 79 participants who have utilize Moodle and other LMS for their online learning strongly agreed that the learning management system Moodle enhances their performance and effectiveness when studying online, receiving a rating of 5-6 out of 7.5. Thereafter, 60 participants also neutrally agreed that the expected consequence of LMS use for online Teaching is good falling within the 4-5 measure on the scale. 37 participants strongly agreed that Moodle has enhance their performance in online learning rating the task technology fit at 6-7 out of 7.5. Only 4 participants who have never used any other online learning management system besides Moodle highly disagree that Moodle does not enhance their online learning abilities, rating it at 1.

Histogram 11: Perceived impact on learning (Moodle +)



Histogram 11 shows that 73 participants who have used Moodle and other LMS neutrally agreed that the learning management system Moodle has a positive impact on their effectiveness and productivity as a student in online classes, receiving a rating of 4-5 out of 7.5. Thereafter, 61 participants strongly agreed that the Moodle has an important and valuable impact on their online learning, rating it within the 6-7th measure on the scale. 51 participants strongly agreed that they learn better with Moodle, rating their perception at 5-6 out of 7.5. However, 4 participants highly disagree that the learning management system Moodle does not have a positive impact on their online learning abilities, rating it at 1.

Histogram 12: Consumerization Attitude (Moodle +)



Histogram 12 shows that 88 participants who have used Moodle and other LMS neutrally agreed that if their teacher could select their own learning management system then it would fit well with learning online, receiving a rating of 4-5 out of 7.5. 81 participants strongly agreed that if teachers choose their own LMS for online Teaching students' performance may improve, rating it within the 5-6th measure on the scale. In addition, 38 students strongly agrees that teachers should choose their own learning management system with a rate of 6-7. However, 2 participants strongly disagree that teachers should not choose their own Learning Management System, rating it at 1.

Discussion

The research presented in this paper looked into the role of task–technology fit in LMS success, as well as how Moodle affects student's performance. Task–technology match was discovered to play an important role in the use and performance of LMS. After the analyzing of the online survey data was completed, it could be noted that Moodle is beneficial to e-learners and the transition to e-learning using the Learning Management System Moodle has impacted the student learning and experience positively at the University of Belize. Looking at Section 1 data analysis, it shows that 125 participants strongly agree that

the Task Technology Fit for online Teaching is good falling within the 6-7th measurement on the scale of 7. 89 participants strongly agreed that Moodle has enhance their performance in online learning rating the task technology fit at 6-7 out of 7 (Expected consequences of LMS use). In addition, 88 students strongly agreed that they learn better with Moodle, rating their perception at 6-7 out of 7.5 (perceived impact on learning) and 118 participants also strongly agree that if teachers choose their own LMS for online Teaching students' performance may improve, rating it within the 5-6th measure on the scale (Consumerization Attitude). This shows that all students that have used Moodle only or other learning management system still perceives Moodle as a beneficial and valuable e-learning platform.

In this study, task–technology fit had a significant positive effect on Learning Management System Moodle being utilized by UB Students which were described as expected consequences of use and attitudes toward use. In section 2 demonstrates that 38 students who has use *Moodle only* agreed that the learning management system Moodle is fit for online teaching and 31 participants strongly agreed that Moodle has enhance their performance in online learning under the construct of Expected Consequences of LMS use. All these findings have shown that Students' Perspective of the Learning Management System Moodle at the University of Belize has a positive impact on their online learning and experience.

Despite half the sample utilizing other LMS besides Moodle, the results still indicates that Moodle is fit for online teaching and it is also convenient and useful which is shown under the construct of Task Technology Fit for Moodle + data analysis in Section 3. Following that, 61 participants strongly agreed that Moodle has a significant and beneficial effect on their online learning, giving it a ranking of 6-7 out of 7 on the scale. It can be determined from the results that the Learning Management System Moodle positively impacts student's online learning despite the rapid transition to e-learning.

Conclusion

The world came to a halt in March 2020 due to the COVID-19 pandemic. However, in an effort to get back to normal and make up for lost time, the University of Belize decided to become a fully online university. The goal of this study was to see "how beneficial Moodle is and how the transition to e-learning has impacted student learning and experience at the University of Belize." Online courses and online platforms are the two types of e-learning available. The University of Belize currently uses a variety of online tools, with Moodle being one of the university's top learning management system investments. Moodle, on the other hand, was found to be the most powerful online by the study population sample. The results of this study are backed up by a substantial amount of data. This has led to the question of what other factors or variables could encourage a more in-depth approach to online learning. Some factors, such as platform problems and perceived workload, are common across campuses. Other variables, on the other hand, behave differently depending on the situation or the user, such as the factors of e-learning effectiveness and online learning satisfaction, which received a majority of positive responses. However, some of the answers were neutral. This demonstrates that all students, whether they have only used Moodle or have used other learning management systems, still regard Moodle as a useful and beneficial e-learning platform. As a result, the vast majority of people consider the move to be successful.

Limitations

Due to the pandemic, an online survey was the major source of data collection for this research. A hypothesis was not conducted because of the time frame. Also students were not fond of doing a survey. Therefore, the participation of students was minimal. The general attitude of most students towards anything online is already negative. Additionally, it shows that students are satisfied with the quality of Moodle and believe it is efficient to get their work done.

Recommendations

A questionnaire was administered to a sample population of 418 students from the University of Belize. Based on our research and the findings gathered from the questionnaire, the following recommendation will allow for online learning and performance to be much more effective at the University of Belize.

Limit class sizes to 40 students per lecturer, some lecturers have over 100 students per class session which makes it difficult to have class discussions since several students might want to share at the same time. Limiting the class size will allow for a better lecturer to student interaction, this will also allow the lecturer to give feedback on tests, assignments and quizzes in a more timely manner.

Consideration should be given for teachers to be given the opportunity to choose their own LMS for online teaching which best suites students. In that way students' performance may improve. Likewise, train lecturers to be versed with the use of online platforms, Moodle, Zoom, Classroom and Google Meet.

The University can invest in technologically designed and updated faculties with broadband internet to match online mode of learning and strengthen administration for online management.

Directions for future research

The findings of this research will set the foundation for future research to better address the effectiveness of online learning through new knowledge. Future researchers can achieve a great deal of new information through the enhancement of our limitations.

An online survey was the only engine used to collect information. This was a limitation since the method did not fully suffice the results we may have received, had we been able to interview some students in person. In the future, other researchers will do well to extend their methods of data collection to ensure that they receive a more elaborate and significant result as it relates to data collection. Some suggestions can be to collect data via interviews and questionnaires from faculties and students alike.

Timing of study was another limitation. The fact that there is global unrest and circumstances contrary to what were the norm, participants may have responded in a biased manner. Most respondents were having survey fatigue due to so many questionnaires being done online and had to either prepare online questionnaires or answer them. One guidance for future researchers is to study the calendar of activities that the universities and by doing this researchers can get their survey out much earlier and would not stress out students to complete a survey near the ending of the semester.

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Appendix

Questionnaire- Task Technology Fit for University of Belize Students

MIS Research - Task Technology Fit Students Perceptions of Learning Management Systems

Purpose

This questionnaire asks for information about the Task Technology Fit of the Learning Management System Moodle used at the University of Belize. We know that the institution uses numerous information systems but we would like to focus on Moodle. This questionnaire is for us to measure the impact of the transition to online learning based on the students' responses to the change of their perceptions of the learning management system Moodle.

Please answer the questions in relation to your personal experience. Your individual responses to this questionnaire will be strictly confidential.

Instructions

This is a survey; there is no right or wrong answers. Please tick the boxes to mark your answers.

Background Information	Choices
Gender	☐Female ☐ Male ☐ Prefer Not to Say
Age	☐16-18 ☐19-22 ☐23-25 ☐26-30 ☐31-40 ☐>40
Faculty	☐ FMSS ☐FEA ☐FST ☐FHS
Degree your Pursuing	o Associates o Bachelor's
Student Year	☐ Year 1 ☐ Year 2 ☐ Year 3 ☐ Year 4
I took one or more online classes prior to the pandemic.	☐ Yes ☐ No
Please indicate which Learning Management Systems (LMS) your teachers at UB have used	☐ Moodle ☐ Google Classroom ☐ Other _____

Indicate your agreement with each statement by rating it from (1) strongly disagree to (7) strongly agrees.

Learning Preferences	
Q1: I prefer face to face classes than online classes.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q2: I am a more efficient student in face to face classes than in online classes.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q3: I learn more in face to face classes than in online classes.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q4: I would want to take some online courses after the University resumes face to face teaching.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q5: I would want to take all my courses online after the University moves back to face to face teaching.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q6: I would not want to take any online courses after the University moves back to face to face teaching.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

Prior Moodle Use	
Q1: Number of semesters where at least one teacher has used Moodle.	o 1 o 2 o 3 o 4

	o 5 o 6 o >6
Q2: One or more of my teachers used Moodle to facilitate teaching face to face classes (prior to online delivery).	o Yes o No
Q3 One or more of my teachers utilized an LMS other than Moodle.	o Yes o No
Q4: How many semesters have you attended classes that used an LMS other than Moodle?	o 0 o 1 o 2 o 3 o 4 o >4
Q5: I attended classes that used an LMS other than Moodle to facilitate teaching face to face classes (prior to online delivery).	o Yes o No
Q6: It would be beneficial to me to attend courses that use Moodle after the University returns to face to face teaching.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q7: It would be beneficial to me to attend courses that use an LMS other than Moodle after the University returns to face to face teaching.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

Task-Technology Fit	
Q1: Moodle fits well with the way I like to study online.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q2: Moodle is compatible with all aspects of my online study.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q3: Moodle is easy to use.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q4: Moodle is user friendly.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q5: It is easy to get Moodle to do what I want it to do.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q6: Moodle is easy to learn.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q7: It is easy for me to become more skillful at using Moodle.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q8: New features of Moodle are easy to learn.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q9: Do you think the output from Moodle is presented in a useful format?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q10: Is the information from Moodle accurate?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q11: Does Moodle provide you with up-to-date information?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q12: Do you get the information you need in time?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q13: Does Moodle provide output that seems to be just about exactly what you need?	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

Expected consequences of LMS use	
Q1: Using Moodle for online classes will help me to accomplish my study more quickly.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q2: Using Moodle for online classes will improve my performance in units.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q3: Using Moodle for online classes will increase my productivity.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q4: Using Moodle for online classes will enhance my effectiveness in my program of study.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q5 Using Moodle for online classes will make it easier to complete my learning tasks.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

Q6: Using Moodle for online classes will give me greater control over my learning tasks.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q7: Overall, I think that Moodle will be useful in my online studies.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q8: Using Moodle will improve the quality of my online learning.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

Perceived Impact on Learning	
Q1: Moodle has a large positive impact on my effectiveness and productivity as a student in online classes.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q2: Moodle is an important and valuable aid to me in my online studies.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q3: I learn better online with Moodle than without it.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

Consumerization Attitude	
Q1: If my teacher could choose their own Learning Managements System it would fit well with learning online.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q2: If my teacher could choose their own Learning Managements System it would fit well with helping me to be efficient in learning online.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q3: If my teacher could choose their own Learning Managements System it would be compatible with my online learning..	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q4: If my teacher could choose their own Learning Managements System my online learning performance would improve.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q5 If my teacher could choose their own Learning Managements System my online learning productivity would improve.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐
Q6: If my teacher could choose their own Learning Managements System I would work faster while learning online.	1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐

Thank you for participating!