

# Evaluating the Effectiveness of Online Learning Platforms at Independence High School

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## Abstract

*Schools have been using the general approach of face-to-face learning for over a century. The use of the internet along-side learning platforms (such as Moodle, Coursera, Skillshare, Udemy and many others) are relatively new to academia. In Belize, most schools still mainly depend on face-to-face lectures that take place in a classroom. Although many academic facilities have been in practice to merge both online learning and face-to-face sessions, we still mainly rely on the latter. In the past year, the world has been struck by the largest virus outbreak since the 2009, H1N1 Influenza virus. Covid-19 was officially declared a pandemic in March 2020. Economies were shut down because of this and schools have had to adapt to using online platforms to facilitate the demand for education in the time of crisis. This adaptation came without warning to most schools. Independence High School was the focus for this study. The learning platforms the facility decided to use are Moodle, Edmodo and Abacus.*

*Key words: online learning, Covid-19, adaptation, Moodle, Edmodo and Abacus.*

## Introduction

One of the more important developments in the use of information technology in school and colleges in the last decade has been the acceptance of learning how to use management systems to further improve on the teaching process. A LMS is an information system that has the proper functions to support effective online learning. LMSs process, store and spread educational material and support administration and communication that goes hand in hand in the online learning and teaching aspect. The terms virtual learning environment (VLE) and online learning environment are the terms that are preferred when discussing this type of information. They are

normally implemented on a wide scale that involves the schools and their faculties, and then taken in by teachers who use them in many ways to improve course management and the student learning process.

LMSs are more popular in the higher levels of education as it gets more complex in the learning processes at those stages. For example, in 2020, 64% of all higher education institutions in the US were using LMSs (BRIAN WESTFALL, AUGUST 19, 2020). However, despite that, there has not been widespread change in teaching and learning practice to take advantage of the full advantage of having LMS to their use. Consistent with this, there has been extraordinarily little analysis of the impact of LMSs on teaching or learning (ecpi university, november 2017). This is especially true for Belize as the use of LMS has only recently become main steam due to covid-19. A lot of the research on LMSs has had technology as a focus or has been tied to only studies of adoption, while miniscule research has put the technology in its learning context (Fedena, november 2017)

To comprehend the effects of LMSs and take full advantage of their important potential, research that focuses on the role of LMSs in learning is essential. In addition to research additional factors that influence the use of LMSs, research on the factors that influence the effects of LMS use on student learning is highly necessary. Task–technology fit, which is the belief that IT has a positive effect on individual performance. is one factor that has been identified to influence both the use of information systems and their performance effects (Goodhue & Thompson, 1995). This can be proven within results of student learning tests and exams. This paper considers the importance of task–technology fit in LMS success and addresses the question of how task–technology fit influences the student performance impacts of LMSs. We intend to analyze the data gathered in order to give our perspective on how well the information systems within Independence high are doing and how it can be improved.

## **Independence High School**

Independence High School (IHS) is an institute for secondary education. The institution offers certificates and diplomas. As its name states, the location of this institute is located in Independent village in the Stann Creek District.

## **Moodle, Edmodo and Abacus**

Moodle is a learning platform designed to provide educators, administrators and learners with a single robust, secure and integrated system to create personalised learning environments. Edmodo is a global education network that helps connect all learners with the people and resources needed to reach their full potential. Lastly, Abacus which is another information system for the students use of grades or communication. all these information systems are used by Independence High to full efficiency. Many of these websites are trusted by big colleges and universities around the world. (<https://ihs.abacus.bz/login/auth>) ( <https://moodle.org>) ( <https://new.edmodo.com> )

## Literature Review

### *E-learning Success*

Since the beginning of time the normal way of learning was all that was known to the educational system, e-learning or electronic learning came about in the 90's. With the evolution of technology e-learning became a more common thing. It might have been more common in developed countries but countries like Belize it was not so common although universities and junior colleges might have innovated it in their systems secondary level institution kept up with the normal way of learning. Although they might have used it in the past for other purposes, students' education was not based around e-learning; it was always the regular classroom setting. In 2020 this all changed and e-learning became the basis of learning due to the world wide crisis, it has had great success thus far. For instance, Alqahtani and Rajkhan (2020) explained that because e-learning students are able to remember content better, additionally it also offers flexibility for both students and teachers, and it also improves the communication amongst learners and instructors. Similarly the e-learning systems are "enablers in the learning process, strengthening their importance as part of the educational strategy in universities and organizations" (Costa, 2017). In 2017 the use of e-learning was not as common in secondary learning as it is currently furthermore, the benefits and success Costa mentions now would also apply to secondary level institutions.

Learning management system which is a "software for creating, managing, and delivering e-learning content" (360 learning n.d.). As a facilitator for e-learning, it enhances learning engagement by adapting to the changing trends of e-learning. LMS has a lot to do with the success of e-learning without LMS like Moodle, Edmodo & Abacus etc. electronic learning would not be effective. For example Davis, Carmean and Wagner (n.d.) states that "LMS is seen by many as the foundation for building today's enterprise e-learning practice". In comparison with Davis, Carmean and Wagner statement Georgouli, Skalkidis and Guerreiro (2008) mention that learning management systems specifically the open sourced software has been shown to be accommodating the desired flexibility tool necessary to facilitate blended learning scenarios. Both sets of authors' mention some sort of effectiveness learning management system has on e-learning whether it be synchronous or asynchronous.

### *Task-technology Fit*

The fact that task-technology fit evaluates the extent in which technology plays a role in how an individual performs his/her task means it's a factor that is to be discussed. According to McGill and Klobas (2009) "task-technology fit refers to the ability LMS has to support students in the range of learning activities they engage in, whilst accommodating the variety of student abilities. Like communicating with instructors and peers, accessing learning materials and undertaking interactive activities such as quizzes". Learning management systems are facilitators of learning and this paper is a clear example of the link between task-technology fit, LMS and e-learning. In addition to McGill and Klobas research also incorporated Goodhue and Thompson (1995) technology-to-performance chain (TCP) which suggest that the success of an information system must take into consideration the purpose of what technology is used and the relevance between task and technology.

Moreover task technology fit also has an effect on instructors. For example McGill, Klobas and Renzi (2011) explained that "the better the fit of an LMS to the skills of an instructor and the tasks that the instructor must complete, the more positive its effect on their performance is likely to be". The more familiar the teacher is to the LMS the better he/she will perform in the delivering of content. In turn students receive a better quality content which then has an effect on their individual performance which links back to TTF.

### ***Theoretical Structure***

These researchers did both data collection and extensive research online in carrying out their respective research papers. They all aim to evaluate a connection or connections between e-learning, LMS or task-technology fit. Additionally they all established that there indeed is a connection between the three components at the end of the research paper. The only holes in the literature was the lack of content relating to Belize and the fact that mostly tertiary level education utilized e-learning therefore they were not data on e-learning in secondary level institutions

## **Research Methodology**

### ***Participants***

This study is focused on the teachers at Independence High School who are using the learning platform, Moodle. Moodle being the LMS of choice by the High School, it is mandatory for all teachers to utilize this platform.

### ***Procedure***

This preparation for this study was about a semester long (4 months); the actual study however, took about a month and a half. We had emailed one of the admins from the facility to request permission to survey about 80% of the teachers. Those teachers were contacted via email inviting them to take part in an online survey that was put together by the Lecturer of the MIS course at UB, Mr. Kieran Ryan.

### ***Instrument***

To conduct this study, we used one structured questionnaire to gather data from the respondents. The questionnaire was focused on the usefulness of Moodle and to get the user's perception on whether or not they preferred Moodle or having the ability to use a learning platform of their choice.

The anonymous questionnaire consisted of seven (7) question sections, which gathered participants' Background Information, Teaching Preference, Prior Learning Management System (LMS) Use, Task Technology Fit, Expected Consequences of LMS use, Perceived Impact on Learning, Consumerization Attitude

### **Construct Measurement**

In an attempt to ensure that the research has validity, the measurement scales used for quantitative data collection on five (5) sections were measured by an Interval Rating Scale, ranging from Strongly Disagree(1) to Strongly Agree (7).

### **Research Question**

How does Task-Technology Fit affect the performance of LMS for the Teachers?

### **Time**

This research was conducted using a cross-sectional research design due to the limited time we had for the course and the restrictions caused by the current pandemic.

## Data Analysis

At this point we are moving away from basic research to applied research, we are not going to test the hypothesis because we don't have enough time. As applied research we are just going to illustrate using the data on how teachers have replied at Independence High School. We are going to see how the learning management system has impacted the learning process of students, and the results of the data are as follows.

## Respondents Background

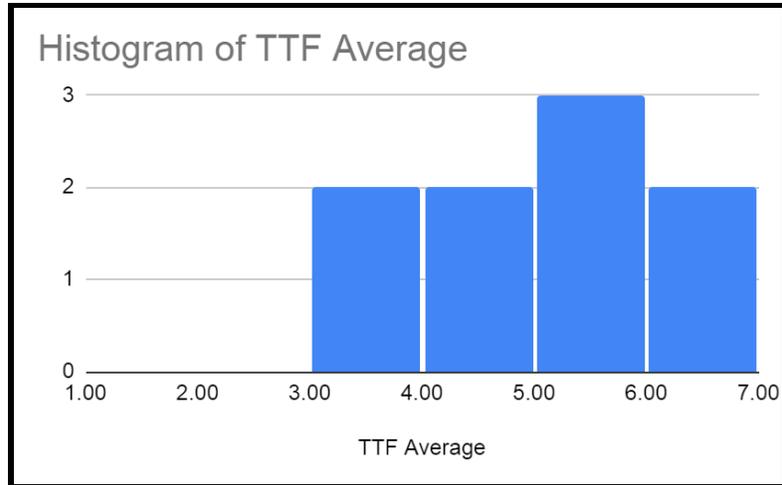
This is the background data from a sample size is a 60% representation of the total active teachers who currently use an LMS at the High School. Female participants represented a 40% of the study while there was a 60% representation from the males. According to the study, there is a 10 % between ages 20 - 30, 70% of the teachers between the ages 31 - 40, 10% between 41 - 50, 10% are between 51 - 60 and 0% of respondents was 60 and over. Bae on the data collected 20% of teachers hold an Associates Degree, 60% have a Bachelors, and 20% a Masters Degree. Furthermore, 50% is from the Arts Department, 10% from Business, and 20% from the General Department.

Gender	Age	Education	Department
Male	1) 20 - 30	1) Associates	1) Business
Female	2) 31 - 40	2) Bachelor's	2) Arts/ Language
	3) 41 - 50	3) Masters	3) General (Agriculture/ Vocational)
	4) 51 - 60		

**Table 1: Respondents Characteristics**

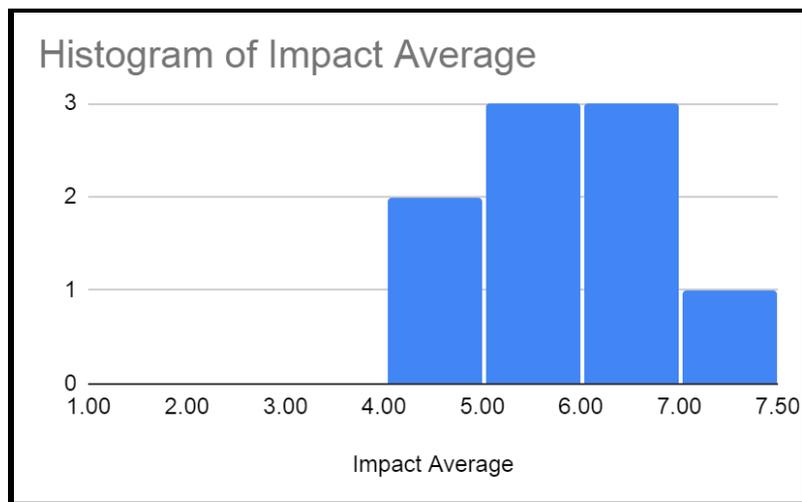
## Histogram Analysis

The Y axis of the histogram is the number of users and the X axis the scale on which users rate their level of agreeableness, 1 to 3 is disagree, 4 is neutral, and 5 to 7 is agreed.



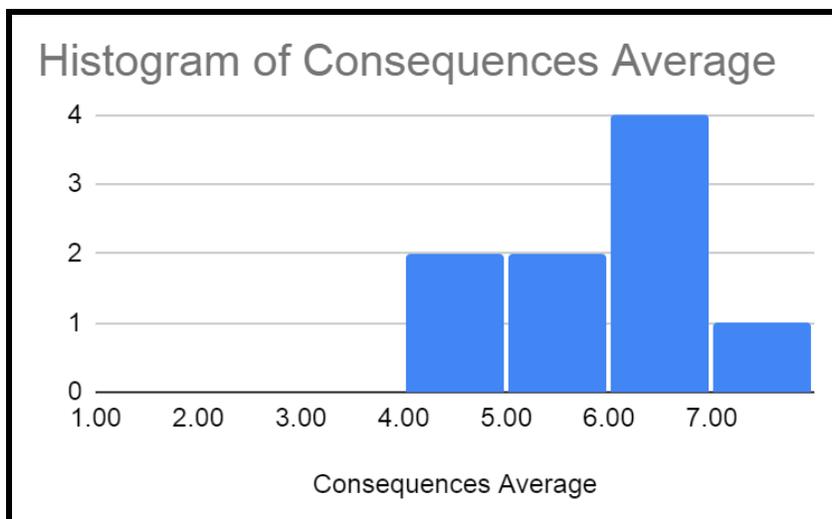
**Figure 1: Histogram illustrates Average Rating for Task Technology Fits**

Figure 1 illustrates that 2 of the 10 respondents disagree with Task Technology Fits and students learn better with face to face than online teaching. 2 of 10 remains neutral, and 5 of the 10 agrees with TTF. One respondent didn't answer.



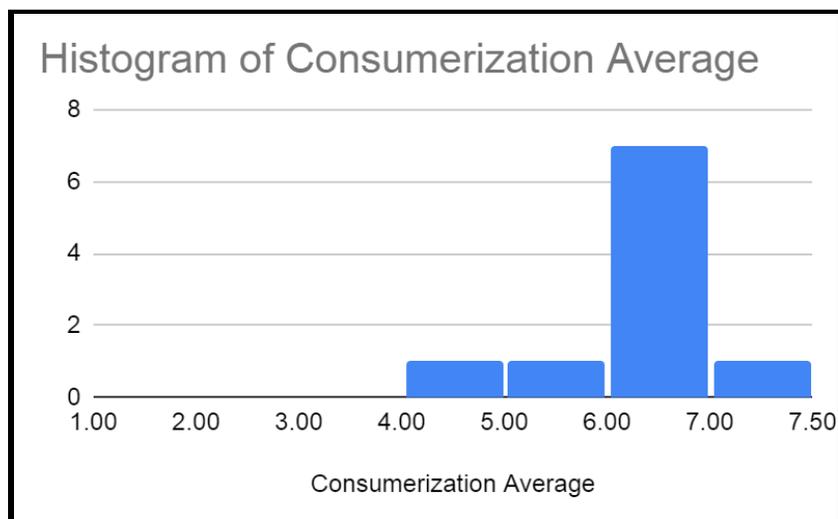
**Figure 2: Histogram illustrates Average Impact analysis**

Figure 2 illustrates that 0 respondents disagree with the negative impact of LMS on students, 2 teachers remains neutral, and 7 out of the 10 respondents agree that moodle has a positive impact on their online teaching.



**Figure 3: Illustrates the Average consequences of using Moodle**

Figure 3 illustrates the consequences of using moodle as an LMS. 2 of 10 respondents remains neutral, while 2 to 7 respondents agreed that moodle would positively impact their teaching effectiveness.



**Figure 4: Illustrates data collected on consumerization**

Figure 4 illustrates 1 respondent remains neutral, and 7 to 9 respondents believe that if they choose their own LMS they would be more effective at teaching online.

Discussion



Figure 5: illustrates a compilation of all data collected

In figure 5 we want to focus on consumerization of teachers who only used Moodle and that of those who use Moodle plus few others learning management systems. Both figures at the bottom right illustrate similarities that all teachers agreed that if given the opportunity to choose their own learning management system they would be more effective at teaching online classes. To properly verify these data a further qualitative survey would need to be completed so as to have a more in depth knowledge.

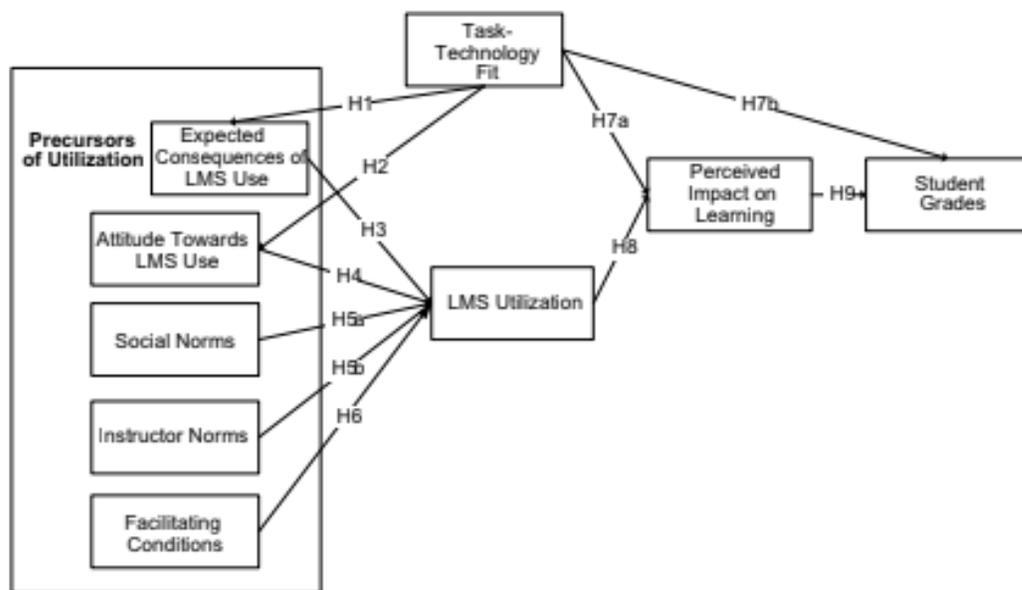
## Conclusion

The research conducted strived to measure the level of success of Independence Highschools information system which are *Moodle, Edmodo and Abacus*, and the students persuasion of this service as a method of the enrolment, registration and financial process. In order to measure the Information System's success, an existing model created by Delvin Jacobs (2021) made with the results shown. The model looks into the types of LMS used by independence high and the feedback of both students and teachers ; this survey was used to judge and operationalize the level of success of the Information System. Moreover, efficiency and user friendliness was looked upon when judging how well these information systems work. from the students standpoint they like the idea and use of the IS being used currently. from the data shown the teachers also have a positive reaction of the use of information systems. results normally show above 50 percent positive feedback when asked about the information systems being used. Due to the highly positive feedback of this study, the study proposes an integrated model for evaluating IS as a success, with the only change in ruling when surveyed is to allow students to pick what IS they wish to use in order to make accessibility easier..

## **Limitations**

1. Due to time constraints the hypothesis couldn't be tested.
2. The pandemic had made it difficult for the researchers to gather information in an adequate time frame.
3. IHS was willing to participate however, teachers weren't filling out surveys as per researchers request.
4. Group members were from different districts and were working so it was difficult to communicate during the day.

## Appendix



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