

Microsoft Teams Transforming Education- Measuring the Success of Microsoft Teams as a Learning Management System

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Abstract

The rapid expansion of technology has come a long way, changing the traditional way of face to face classes. This study makes use of the Goodhue & Thompson Information System Success Model to evaluate the effectiveness of Microsoft Teams at an educational institution. The model encompasses four constructs: task technology fit, Consumerization attitude, the Expected consequence of LMS, and perceived impact. The purpose of the investigation is to determine if the Microsoft team is successful and useful in Muffles College High School. The data collection was done in a simplified way by the use of questionnaires which were online and only took the instructors ten minutes to complete. Results indicated that MS teams is indeed successful since it demonstrated the confidence the instructors had in their skills and also increasing operational excellence. Therefore, Microsoft teams have proven to be successful and effective in an educational institution.

Keywords: Teaching impact, Microsoft teams, Task technology fit, Consumerization attitude Educational institution, Belize, Learning Management System, ELearning

Introduction

Technology has been advancing every year and making life easier and more convenient for people every day (Mitzner, 2011). Current digital systems such as computers, smartphones, tablets and laptops have evolved over time. The typewriter was replaced by digital systems such as a computer and word processing software. Telephones have evolved over time into versions that are portable such as mobile phones and, more recently, smartphones. Due to technology advancing, people have been able to communicate with each other across the world at the comfort of their own home (Shugan,2004). Technology certainly has changed the way we communicate with each other, even in companies and schools. (Martin, 2019) Many businesses use a management information system which is simply an information system used for decision-making, coordination, control, analysis, and visualization of information in an organization to help improve the organization so that it can perform at maximum efficiency. A management information system that has become quite popular and used across many countries around the world is Microsoft teams. (Singh, 2020) Microsoft Teams has many extremely useful features for business communications. Some of its features are that it has document sharing, online meetings, teams and channels, conversations within channels and teams, chat function, document storage in SharePoint, online video calling and screen sharing, and audio conferencing (Buchal, 2019). Many schools have recognized the effectiveness of Microsoft Teams especially when it comes to online learning. The importance of this research is to highlight the success of the learning management system which is “Microsoft Teams” at Muffles College. In addition it helps to provide information to Muffles College and to add more research to the country of Belize. This research is different from previous research due to the fact that in previous research the researchers would focus on how effective the teachers and students can use management information systems for teaching online, whereas our research focuses on the integration of Microsoft Teams on online classes at Muffles College and how effective the users can perform their objective with it. This paper will discuss the effectiveness of Microsoft Teams in Muffles College and highlight how well the teachers are effectively getting across their objectives and goals using the management learning system.

Literature Review

Currently, the COVID-19 pandemic has physically shut down all educational institutions worldwide which resulted in an “online-only” exclusivity of educational business models and processes which is known as eLearning or online learning. In this perspective, the perceived usability of the online learning platforms currently being used is an important aspect, especially due to the absence of the traditional teaching model (Vanijja, 2020). Many developing countries have taken an interest to invest in Information Systems (IS) that can help boost their performance, achieve competitive advantage and allow space and time shifting for their employees and students. However, developing countries are relatively still too small to invest in technology greatly so they rely on international donors for example the World Bank, or the World Health Organization. They play an important role in shaping these countries in both technical and financial aspects (Nhampossa & Salaam, 2004).

To gain an understanding on what influences the success of a learning management system (LMS), we can utilize the Task technology fit model (TTF). This model focuses on the idea that the outcomes of an information system depends on how aligned the system is with the task being done. It encompasses six interrelated dimensions that influence the performance. These include: task characteristics, technology characteristics, individual characteristics, task technology fit, the utilization and the precursors of utilization which includes the norms, habits, attitude towards use and facilitating conditions (Goodhue & Thompson, 1995). Technology characteristics include the hardware, software, data and processing of an IS. The individual characteristics are the attitude, motivation and skills that influence how they use the information technology (IT). It should be noted that the success of an information system depends on the features of an organization which also includes the culture (Laudon & Laudon, 2020). Based on the two previous dimensions, coupled with the task characteristics, the degree to which the task is matched to the technology is impacted. This degree then impacts the utilization based on the precursors previously mentioned and ultimately the overall performance. Past research such as the “Acceptance of learning management system in university students: an integrating framework of modified UTAUT2 and TTF theories” adjusted the TTF model to investigate the acceptance and adoption of the IS for tasks (Sharif, Qureshi, & Afshan, 2018). Generally, findings show that the lack of awareness of the technologies features greatly impact the TTF portfolio and causes low adoption. Moreover, the facilitating conditions were what greatly influenced the adoption and acceptance by students (Rai & Selnes, 2019). Also, it is noted that the attitude towards the use of the technology greatly influences its performance outcomes (McGill & Klobas, 2009). IS also impacts the degree to which an organization achieves strategic business objectives such as operational excellence, competitive advantage, new products, business models and services, and survival (Laudon & Laudon, 2020). Tanya McGill’s article, “The Relationship between LMS Use and Teacher Performance: The Role of Task-Technology Fit”, integrated the TTF to analyze the performance impacts of instructors using an LMS. It noted that TTF could exist while facilitating conditions and ICT support are imperfect in the perspective of instructors. (McGill, Klobas, & Renzi, 2008).

Moreover, developing countries do take a liking to the information systems being used because it improves learning capabilities for eLearning. In an article "From Teaching, Learning to Assessment: MOODLE experience at B'School in India" written by Prashant Bargea and Dr. B.R. Londheb (2014) they discussed the advantages of LMS. These advantages include the constant upgrades, improved flexibility, and availability of online documentation. It is evident that LMS has helped institutions present their lectures through a creative and effective manner as well as providing a solution to eLearning where students can easily access their notes and conduct their task through their online platform, MOODLE. Seeing as India is a developing country, not many citizens have Wi-Fi or access to internet facilities (International Statistical Institute, 2021). The article "Learning management Systems: Understanding the expectations of learners in developing countries" mentioned the same issue. It stated that the majority of students responded to being fully capable of using the LMS but prefer to use them with laptops/desktops instead of a smartphone. However, it is sometimes not easy to access these devices. The results found that developing countries lack ICT facilities, which means that more needs to be placed in order to provide easier access to its users. (Ssekakubo, Suleman&Marsden, 2012). Many countries have started to use an IS to communicate and improve information. According to Fadda & Osman "Microsoft teams (MS Teams) is a new learning management system that was designed by Microsoft 365 in 2016. It is characterized by being secure, free and efficient." (Faddaa & Osman 2020). It is a cloud computing platform that brings conversations, meetings, files, and apps together in a single LMS, available in windows, mac, and mobile phones. An instructor can type "schedule meeting" into a chat, and the bot will gather information and then schedule the meeting and invite other staff members or students (Rojabia, 2020). It also has options for file sharing to share files such as power points, PDF's, quizzes and tests and can provide a grade based on a predetermined rubric. According to the "Future Health Journal," the research showed that MS teams have enhanced the teaching and learning business processes during COVID-19 lockdown and increased operational excellence (Daisy Henderson, 2020). In addition, the Indonesian Open University, Jember created questionnaires with 28 undergraduate students and resulted in a positive feedback of students' satisfaction with the education platform. It revealed that 43% of the students found easy interaction using MS Teams, however, 38.89% found that miscommunication was an often occurrence (Rojabia, 2020). Using technologies especially, communication applications, support instruction and empower students to participate actively and collaboratively (Seaman, J., & Tinti-Kane, H. 2013; Shanmugapriya, S. & Veerakumar, K. 2016).

According to "Keep calm and carry on learning: using Microsoft Teams to deliver", MS teams is more suitable for secondary and tertiary students (Daisy Henderson, 2020). Moreover, 95% of the presenters felt MS Teams was an effective platform for teaching and 84% felt they would be likely to use the platform again for teaching purposes (Daisy Henderson, 2020). This reflects the teaching preferences and perceived task technology fit by those respondents in Daisy Henderson's study. However, in the article, "Online Learning during COVID-19: Students' Perception of Multimedia Quality", they tested the multimedia quality that Microsoft teams provides in regards to video and audio. They noted that MS Teams ranked lowest compared to Zoom and Cisco Webex platforms (Pal, Vanijja, & Patra, 2020).

Moreover, Debajyoti Pal and Vajirasak Vanijja's research provided insights on the Technology acceptance model on MS teams and its usability. It noted that the usability of MS teams increases when utilized on the web based platform rather than on the mobile digital platform. One factor related to this is the available screen size (Pal & Vanijja, 2020). The larger the screen, the more user friendly it is for users. Past research has mostly studied the acceptance and ultimate support of Microsoft teams. According to Rojabi, Microsoft teams provide optimal support for students partaking in the online learning environment (Rojabi, 2020). There has been little research that integrates the Microsoft Teams platform and the TTF model to analyze the performance impacts of instructors. With that said, it is important to probe information on the task technology fit between the educational business processes and the features Microsoft teams provide.

Collaborating online is not easy and the usability of the digital workspaces used is important. Companies providing these digital workspaces constantly need to evaluate the usability to find problems and improve their product with design principles related to interactive systems. According to “Microsoft Teams: A qualitative usability study” the fundamental way is to use a usability test with users as close to the intended end-users as possible and with post-test interviews after each test. During the usability test the participants were observed whilst using the product and thinking aloud, which helps understand how the participants view the product and to identify any misconceptions. The main results show that there are several usability problems with MS Teams especially during the log on process and with changing output source. At the same time the results show that sharing files and calling are some of Microsoft Teams strengths, resulting in the perceived usability of Microsoft Teams high.

Methodology

Participants

The participants that were targeted for this study were the teachers of Muffles High school that use the management information system known as “Microsoft Teams”.

Procedure

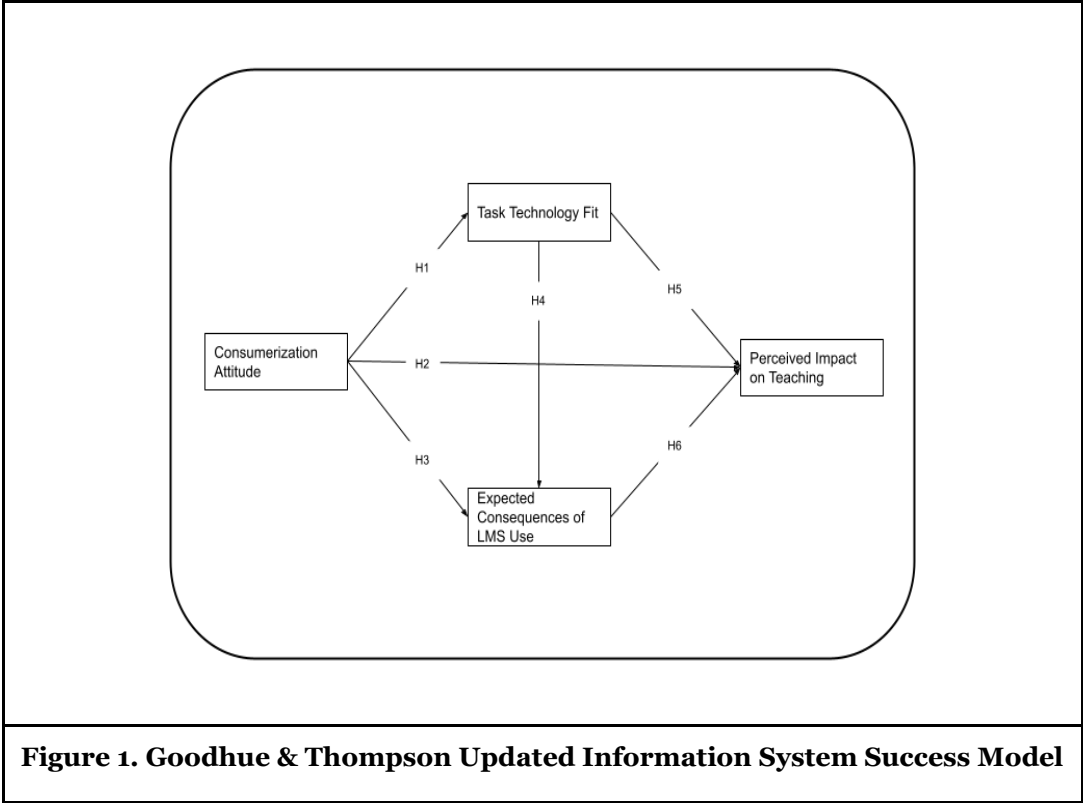
The preparation of the project began quarter way into the semester by locating the school that met the requirements necessary for our research. Following that, permission was requested to perform a research on the school. The questionnaire was then formed and finalized using Google Forms and was sent out via email to the instructors in order to provide us with useful data. The total completion of the questionnaire took approximately 10 minutes. All responses that were gotten from the survey were anonymous and remained confidential.

The method that was used was a survey which was quite different from the previous literature review since in previous studies some of the researchers conducted interviews with the participants.

The limitations that the researchers had during their research was that they had a time frame since school is only opened for a period of time which made it hard to gather the information. Another limitation is that the researchers could only analyze the information for selective classes due to the large number of classes.

Measurements

A questionnaire was utilized to gather data for this research. The questionnaire consisted of seven sections. The first section asked the participants general information about themselves such as age, gender, and what type of management learning system they use. The second section consists of the teaching preferences in regards to the teaching modality. The third section asked the participants the prior learning management system, the fourth section asked questions about the task technology fit, section five asked about the expected consequences of LMS use, section six asked about the perceived impact on teaching, and the last section focused on the consumerization attitude. The questions were measured on a 7 point Likert scale labeled from ‘strongly disagree’ to ‘strongly agree’. Learning Management System performance impacts were measured in two ways. Teachers' perceptions of the impact of Microsoft Teams on their learning in general were measured using three items based on those developed by Goodhue and Thompson (1995). This aspect of performance impact was characterized as perceived impact on teaching.



The above diagram gives an overview of our research model of the survey of teachers. The Task-technology fit (TTF) theory holds that IT is more likely to have a positive impact on individual performance if the IT match the tasks that the user must perform (D'Ambra & Rice, 2001). Consumerization attitude looks at the teacher’s perspective towards productivity while using MS team or their own LMS. Moreover, the Expected consequence of LMS use analyzes their expected results when using MS Teams for teaching. The final construct is perceived impact on teaching which is connected to all the other points. This is the dependent to denote the impact while using MS teams. These are the points of this research to determine if MS team is successful and effective for an educational institution.

- H1: Consumerization attitude will negatively influence perceived task-technology fit.
- H2: Consumerization attitude will positively influence perceived impact on teaching.
- H3: Consumerization attitude will negatively influence expected consequences of LMS use.
- H4: Task–technology fit will have a positive influence on expected consequences of organizational LMS use.
- H5: Task–technology fit will have a positive influence on perceived impact on teaching.
- H6: Expected consequences of LMS use will positively influence perceived impact on teaching.

Table 1: Measurement Items for Questionnaire

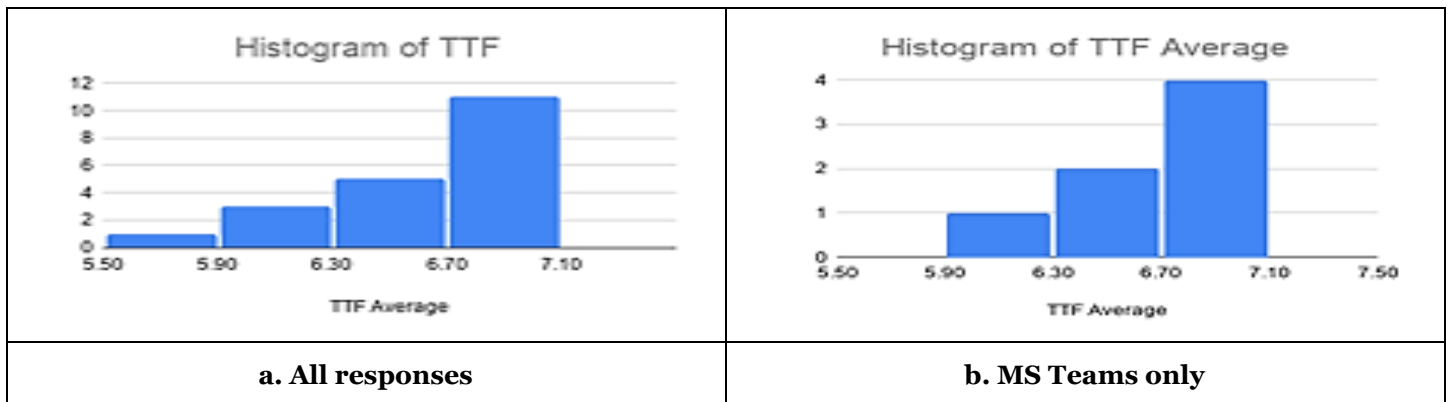
Construct	Survey Questions	Source
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Teaching Preference	<p>Q1: I prefer teaching face to face rather than online</p> <p>Q2: I am more effective teaching face to face than online.</p> <p>Q3: Students learn more in my face to face classes than online. Q4. I would want to teach all my courses online after the high school moves back to face to face teaching.</p> <p>Q5. I would not want to teach any online courses after the high school moves back to face to face teaching.</p>	
Prior Learning Management System (LMS) Use	<p>Q1: Please state the number of semesters you have used Microsoft teams.</p> <p>Q2: I used Microsoft Teams to facilitate teaching face to face classes prior to the high school's move to online delivery.</p> <p>Q3: I have taught classes utilizing an LMS other than Microsoft Teams.</p> <p>Q4. How many semesters have you taught using an LMS other than Microsoft Teams.</p> <p>Q5. I used an LMS other than Microsoft Teams to facilitate teaching face to face classes (prior to online delivery)</p> <p>Q6. I plan to continue using Microsoft Teams to enhance my teaching after we return to face to face teaching.</p> <p>Q7. I would like to continue using my preferred LMS to enhance my teaching after we return to face to face teaching.</p>	
Task Technology Fit	<p>Q1: Microsoft Teams fits well with the way I like to teach online.</p> <p>Q2: Microsoft Teams is compatible with all aspects of my online teaching.</p> <p>Q3: Microsoft Teams is easy to use.</p> <p>Q4: Microsoft Teams is user friendly.</p> <p>Q5: It is easy to get Microsoft Teams to do what I want it to do.</p> <p>Q6: Microsoft Teams is easy to learn.</p> <p>Q7: It is easy for me to become more skillful at using Microsoft Teams.</p> <p>Q8: New features of Microsoft Teams are easy to learn.</p> <p>Q9: Do you think the output from Microsoft Teams to the students is presented in a useful format?</p> <p>Q10: Can you provide accurate information to your students with Microsoft Teams?</p> <p>Q11: Can you provide up-to-date information to your students with Microsoft Teams?</p> <p>Q12: Can you provide information students need in time using Microsoft Teams?</p> <p>Q13: Can you provide information that seems to be just about exactly what your students' need with Microsoft Teams?</p>	(McGill & Klobas, 2009)
Expected consequences of LMS use	<p>Q1: Using Microsoft Teams will help me to accomplish my online teaching more quickly.</p> <p>Q2: Using Microsoft Teams will help me to accomplish my online teaching more quickly.</p> <p>Q3: Using Microsoft Teams will improve my online teaching performance.</p> <p>Q4: Using Microsoft Teams will increase my online teaching productivity.</p> <p>Q5: Using Microsoft Teams will enhance my effectiveness as a teacher while teaching online.</p> <p>Q6: Using Microsoft Teams will make it easier to complete my teaching tasks while teaching online.</p> <p>Q7: Using Microsoft Teams will give me greater control over my teaching tasks while teaching online.</p>	(McGill & Klobas, 2009)

	<p>Q8: Overall, I think that Microsoft Teams will be useful in my ability to teach online.</p> <p>Q9: Using Microsoft Teams will improve the quality of my online teaching.</p>	
Perceived Impact on teaching	<p>Q1: Microsoft Teams has a large positive impact on my effectiveness and productivity as an online teacher.</p> <p>Q2: Microsoft Teams is an important and valuable aid to me in my online teaching.</p> <p>Q3: I teach better online with Microsoft Teams than without it.</p>	(McGill & Klobas, 2009)
Consumerization Attitude	<p>Q1: If I could choose my own Learning Managements System it would fit well with teaching online.</p> <p>Q2: If I could choose my own Learning Managements System it would fit well with helping me to be efficient in teaching online.</p> <p>Q3: If I could choose my own Learning Managements System it would be compatible with my online teaching. Even when there was no one around to tell me what to do</p> <p>Q4: If I could choose my own Learning Managements System my online teaching performance would improve.</p> <p>Q5: If I could choose my own Learning Managements System I would work faster while teaching online.</p>	<p>(Ifinedo, 2018)</p> <p>(Ortbach, Bode, & Niehaves, 2013)</p>

Data Analysis and Discussion

The data was acquired at an educational institution in Belize. A total of 20 instructors (60% female, 35% male and 5% preferred not to say) participated in the study. The ages ranged from minimum of 20 years to maximum of 60 (with the average age range of 31-40). The sampling technique used was the stratified sampling because we only surveyed instructors who utilize Microsoft teams (MS Teams) at the educational institution since it is the focus of the research. A 7 point Likert scale was used with questions ranging from strongly disagree to strongly agree to measure each construct of the model. Each construct was coded and analyzed using Google Sheets. We subdivided the results into three categories: results of all respondents, results of instructors who have only used MS Teams, and results of instructors who have used other LMS apart from MS Teams. A total of 9 histograms will be presented (three of each construct). These charts will help examine the success of MS Teams for instructors.



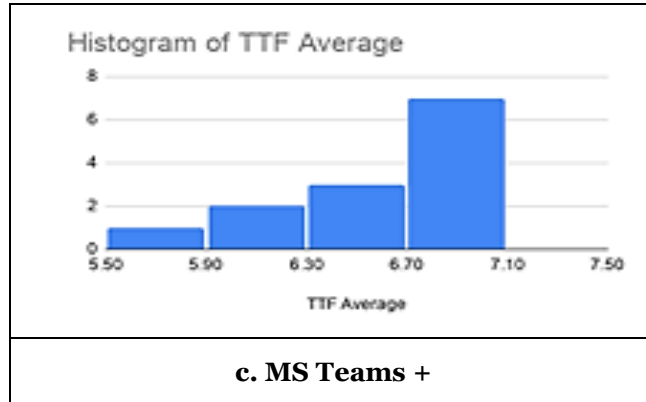


Figure 2. Task Technology Fit

Figure 2 shows the responses of task technology fit of MS Teams at an education institution. Figure 2.a. shows that based on all responses, all participants agreed that MS Teams do fit with the tasks they are required to do. 16 out of 20 instructors are highly satisfied with the use of Microsoft teams for their teaching tasks. Figure 2.b. shows a more focused view on those instructors that have only used Microsoft teams. This category shows that they are indeed highly satisfied with the task technology fit of the Microsoft Teams as an LMS since their responses ranged from 5.9 to 7.0. Figure 2.c. shows that instructors that have used more LMS than just MS Teams also agree that it fits with the tasks they do in teaching. 7 out of 13 instructors highly agree with its use for completing business processes.

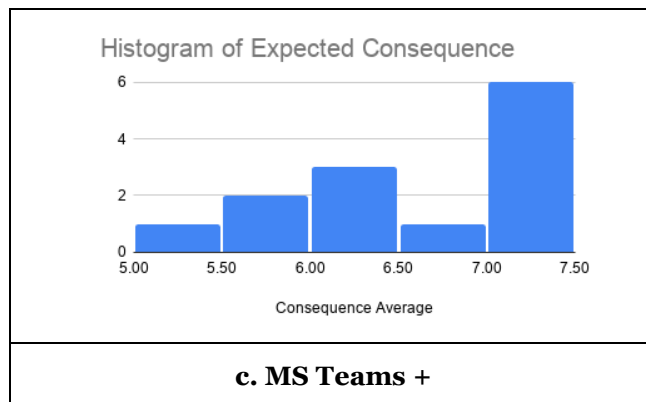
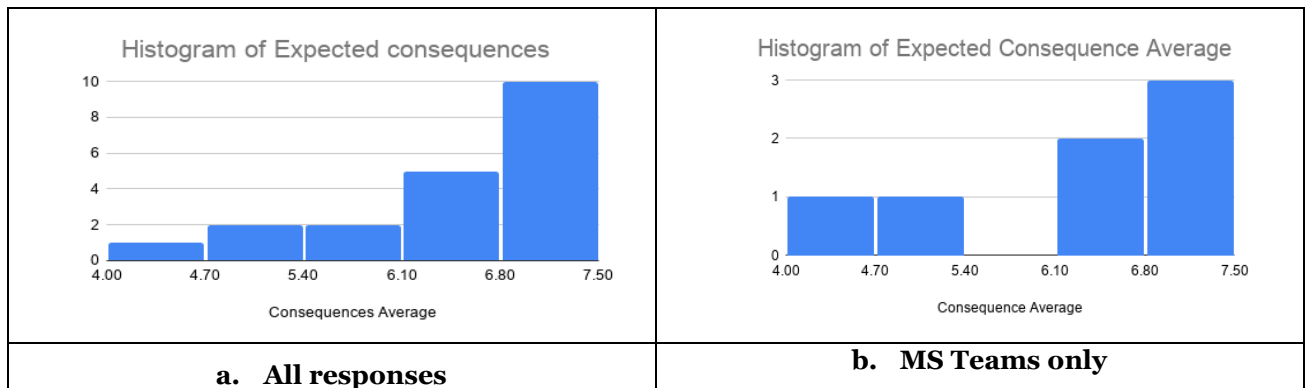


Figure 3. Expected Consequence of Use

Figure 3 demonstrates the expected consequence of using MS Teams in the educational institution. Figure 3.a. shows that 17 out of 20 instructors believe that the use of MS teams is beneficial for their job performance and productivity. However, 3 out of 20 instructors are neutral towards if it would benefit their performance or not. Figure 3.b. shows those responses from only MS Teams; 5 out of 7 instructors highly agree that using MS Teams will benefit them in their performance and productivity, while 2 are neutral. Figure 3.c. indicates that, generally, they do believe it will benefit them by using MS Teams since all of them range from agree to strongly agree. 6 out of 13 highly agree that using MS Teams will increase their productivity and performance in their jobs.

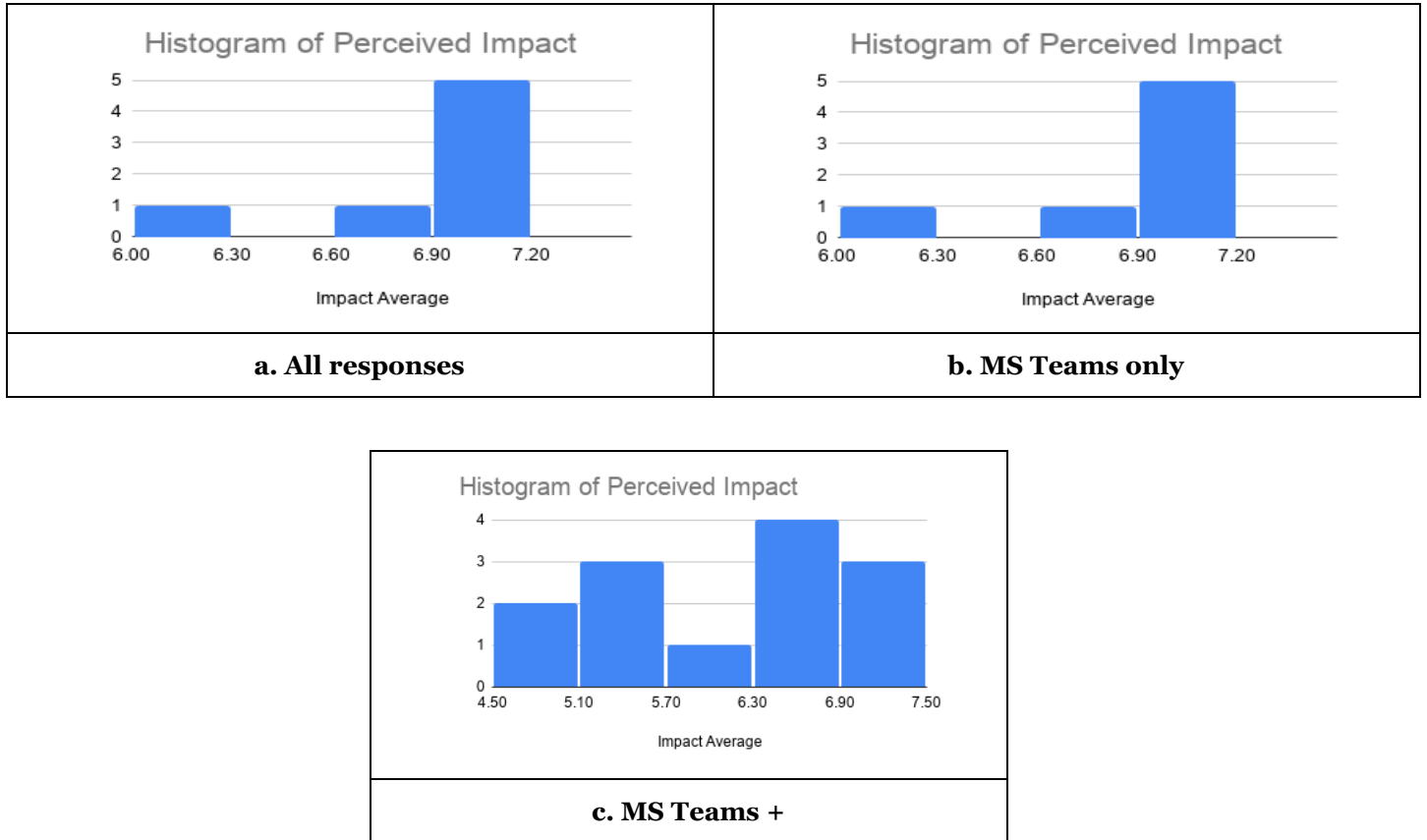


Figure 4. Perceived Impact on Teaching

Figure 4 demonstrates the perceived impact on teaching from using MS Teams. Figure 4.a. shows that 18 out of 20 instructors believe that the use of MS teams brings a positive impact on their teaching while 2 instructors seem neutral about its impact on their teaching. Figure 4.b. indicates that all 7 participants agree that it will provide a positive impact on their teaching. Figure 4.c. shows that 7 out of 13 participants that have used other LMS apart from MS Teams believe it will positively impact their teaching, while 6 instructors see an average impact from its use towards their teaching process.

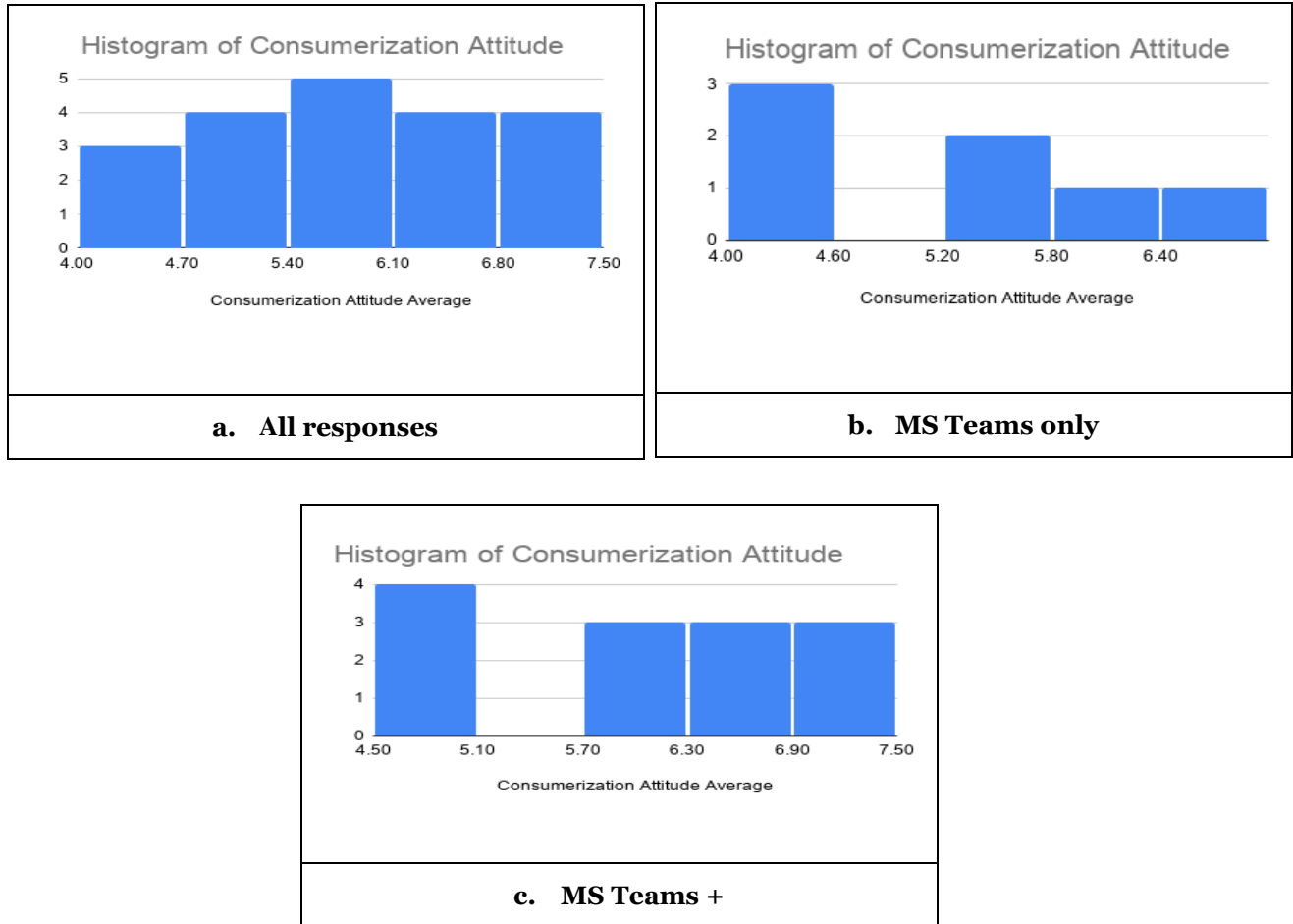


Figure 5. Consumerization Attitude

Figure 5 shows a lot of variance in regards to Consumerization attitude. Figure 5.a. shows that 8 out of 20 instructors find that using their own LMS would highly increase their productivity and performance in teaching. However, 9 out of 20 generally agree that it will assist them to increase operational excellence and efficiency and 3 are neutral about choosing their preferred LMS. Figure 5.b. shows that 3 out of 7 instructors who have used only MS Teams believe that consumerization attitude does not affect their performance and the remaining 4 generally do not see a massive impact in choosing their own LMS to use. Figure 5.c. shows that 6 out of 13 participants strongly agree that teaching abilities will increase if they choose their own LMS. On the other hand, 4 participants do not see a high impact on their performance if they choose their own LMS to use. The remaining 3 out of 13 find an average increase if they use their own LMS.

Discussion

This research was done to study and determine the success and effectiveness of Microsoft Teams at an educational institution. The research did help to get to our targeted audience which were the teachers of Muffles High school regarding Microsoft teams. The most used LMS was Microsoft Teams by most teachers with a Bachelor’s in education. Most of the teachers strongly agreed that Microsoft Teams is compatible with their online teaching tasks. Also they strongly agreed that it is prior for them to get skillful towards Microsoft Teams.

Teachers at the institution at Muffles High School stated that Microsoft Teams fits well with the way they teach online. Results proved that the LMS was very easy to use and compatible. Instructors were able to use Microsoft Teams to share and get accurate information across to their students. 70% of the

respondents agreed to being successful in using Microsoft Teams and its new features that allows them to complete their tasks efficiently and effectively. Moreover, they all agreed that Microsoft Teams is easy to use and very user friendly, regardless if they had other experiences with other LMS or not. All in all, the data analyzed revealed that the TTF had the highest average of 6.611538462 when determining the LMS's success.

When it came to the expected consequences of LMS use the total average total was 6.383333333. A total of 15 instructors pointed out that Microsoft Teams will be assisting them in their online teaching performance. 65% of the respondents answered to the LMS having a large impact on their effectiveness and productivity as an online teacher. Furthermore, 55% of the teachers said that it would be easier to complete their teaching tasks when conducting online classes. Note that 92.3% of instructors who have used other LMS, agreed that using Microsoft Teams will give them greater control over their teaching tasks online. As a result, it has been proven that Microsoft Teams can easily be used to complete their tasks and increase performance.

In relation to the perceived impact on teaching, the total measured average was 6.316666667. Based on the results, many lecturers depend on Microsoft teams to improve their productivity and efficiency. This can be further proved with an average of 4.92 for the teachers who use more than just Microsoft Teams when asked if they prefer face to face rather than online. This average indicates that they are indeed inclined to online learning than face to face. This can be due to having online experience before online teaching was fully implemented during the pandemic. Muffles College is a very innovative school that already had a program for providing laptops for in class use and establishing an electronic business model at the institution.

The lowest construct was Consumerization Attitude with an average of 5.72. This indicates that lecturers generally don't mind using their own LMS or not. The reason for this can be because most of the respondents use different learning management systems or have practiced with various ones prior to the pandemic. For example, google classroom, Edmodo and Moodle. The second largest LMS was Edmodo which was used by 75% of the participants. This is because the two official LMS for the school are MS teams followed by Edmodo.

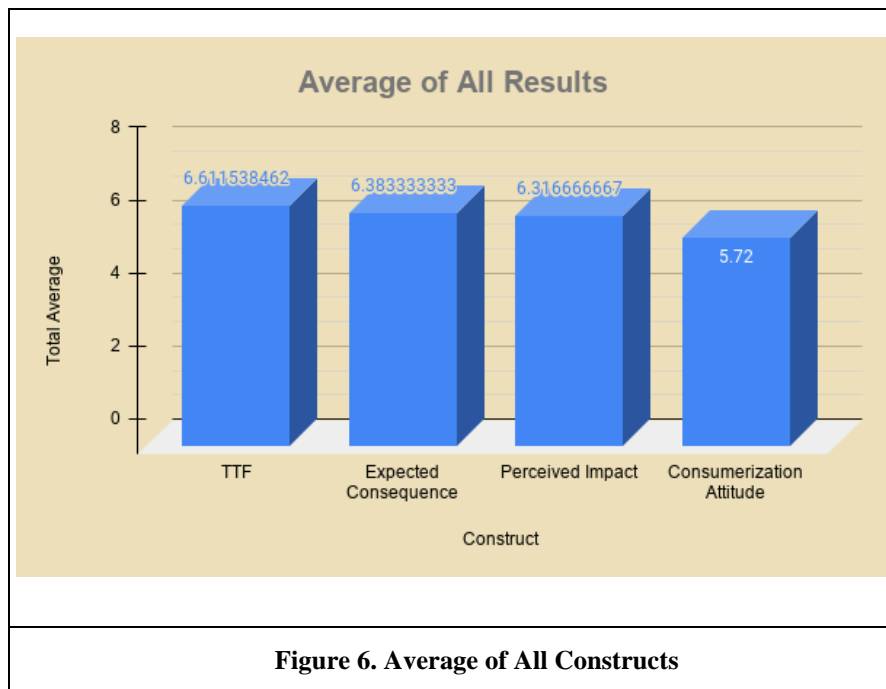


Figure 6 shows the overall average of each construct. Consumerization had the least impact towards the success of MS Teams. Task Technology fit was the highest which indicates that instructors do find MS Teams useful for their teaching tasks.

Conclusion

Our Research paper was done to identify if Microsoft Teams Information System is successful at an educational institution. In order to attain this, a basic research was conducted followed with applied research. An IS model was developed to capture the success factors of the Information system. The results showed that the consumerization attitude, task technology fit, expected consequence of use and perceived impacts on teaching contributed to the success of Microsoft Teams for instructors. Though, consumerization attitude was the lowest construct, it still contributed to the success of the IS because it demonstrated the confidence the instructors had in their skills. The results also indicated that the use of Microsoft Teams increases the operational excellence of instructors as they find it easier to use the platform for their tasks. It provides features such as automatic grading to be more efficient. One limitation includes time. The researchers had limited time to do an extensive analysis of the results and correlate each element with each other to see its impact on the success. Linking to this, another limitation is not being able to survey as many instructors as possible. The total amount surveyed was 80% of instructors who use MS Teams. A third limitation is the use of simple averages instead of more effective statistical tools for analysis. One recommendation is to allow more time to conduct the research. Secondly, it is recommended to use more tools of statistics such as the Pearson Correlation method to see how each construct impacts the performance of instructors.

Future research should examine the role of organizational culture on the success of Microsoft Teams LMS. Moreover, it should compare side by side the perceived impact of Edmodo to Microsoft Teams since the educational institution uses both LMS to operate. This study makes a great contribution to the impact of consumerization attitude, in fact, it denotes that with experience and diversity in the organization, instructors do not find any significant change when choosing their own LMS. Further research can test this by examining the performance of instructors with different LMS that they are skilled on.

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