Usability Evaluation of Microsoft Teams as an eLearning Platform for Business Administration Students

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Abstract

Electronic learning is a learning process that utilises technology and modern devices, and it plays a vital role in contemporary education, especially during the pandemic. Its significance lies in the fact that Instructional Materials are available at any place and device from a desktop or laptop to a mobile device. Due to the pandemic, most state universities and colleges in the Philippines had to shift to education delivery that is accessible everywhere with the use of technology. Several learning management systems are available, and one of the new tools available was released by Microsoft. The Pangasinan State University currently subscribed to Office 365 A3 for students and faculty members due to the pandemic. This study aims to evaluate the product's functionalities. The main objective of this paper is to identify the usability of the adopted learning management system of The Pangasinan State University, which is Microsoft Teams. In the re-orientation of students held last March 2021, which marked a year of pandemic, the students were asked to answer the survey regarding the perceived usability of Microsoft Teams, and Google Forms was used to collect responses. Google Sheets was used to export the gathered data for pivot analysis. The researchers also computed the correlation matrix using RapidMiner. The findings showed neutral rating for the use of Microsoft Teams as a learning management system. Microsoft Teams may or may not be as positive as expected for students in terms of learning experience, and the researchers acknowledge students' limited utilisation of the Microsoft Teams as a learning management system.

Keywords: eLearning, evaluation, Learning Management System, Microsoft Teams, pandemic, usability

Introduction

As the coronavirus disease or COVID-19 virus continues to threaten public health, the world continues to face significant challenges. Universities and colleges across the globe have been closed down temporarily to safeguard students, teachers, and staff from potential infection (Virtič et al., 2021). It has been reported that the pandemic has impacted nearly 1.2 billion students in 143 countries (UNESCO, 2020).

Students must continue their education, thus online learning continue to grow as the most probable solution during the COVID-19 pandemic (Pastor, 2020). Schools and universities are shifting to the digital environment from the four walls of classrooms. According to a recent survey, universities and colleges are willing to spend up to three hundred billion dollars by 2025 on educational technology (Renub Research, 2019). Video conferencing, interactive tutoring, and, most notably, Learning Management Systems (LMS) are examples of these digital methods and tools for online learning.

Whether ready or not, teachers need to adapt to the changing environment due to the current pandemic. In the Philippines, the Pangasinan State University and other universities have also adopted the new normal in instructional delivery. The University is stronger than ever as a premier state university in the country despite the insurmountable odds brought by the pandemic. Under the leadership of the university's president, Dr Dexter R. Buted, and with the ardent support of the Academic and Administrative Council, the Pangasinan State University boasts its effective use of accessible and learner-centred flexible learning modality custom-fit to students' needs, such as the subscription to Microsoft Teams or MS Teams.

The Microsoft Office 365 suite software, widely used in higher education as a productivity tool, was introduced as "MS® Teams" in 2017 (Buchal & Songsore, 2019). Initially, MS Teams was primarily used for distributed project collaboration. However, given the abrupt change to online learning during the COVID-19 pandemic in the first quarter of 2020, it has been recently used for teaching and learning.

In order to facilitate the use of MS Teams, faculty members and students at the University were trained to navigate the instructional delivery platforms fully. Flexible learning materials of the thirty-two (32) offered programmes underwent revisions spearheaded by the University Board before the school year started. This included a constant and successive review of course syllabi and study guides. The university made sure that no one was left behind through the provisions of learning aids, such as subscriber identification module cards or SIM cards with free mobile load, tablets, and pocket Wi-Fi. These were distributed to deserving students who need such support. These steps were taken based on a compilation of feedbacks, including students' feedback, faculty evaluations, and stakeholders' forums.

The Pangasinan State University adopted MS Teams as the official LMS of the university. Each class was configured with "channels." Each channel or class was configured with a group chat conversation, a file document library, and a shared OneNote notebook.

This study is needed to determine the acceptability and usability of MS Teams as an LMS. The findings will help the university to decide on the subsequent subscriptions. It will

also serve as a guide to other universities in adopting best practices. If the university continues its subscription to MS Teams, this will be a basis for a possible course of actions, helping students to be comfortable and confident in terms of its usage and appropriateness in the compelling education setup.

Literature Review

Learning Management System (LMS)

LMS is a relatively new idea often confused with e-learning, digital learning, distance learning, and virtual learning (Al-Busaidi & Al-Shihi, 2010). LMS is used not only for merely delivering courses and materials electronically but its primary focus is managing the education process (Al-Busaidi & Al-Shihi, 2010).

One study looked at the practical usage and the quality of some LMSs. They defined user experience as the key factor determining the success of a particular software (Nakamura et al., 2019). Meanwhile, Kraleva et al. (2019) discussed the criteria for the analysis of the LMS platforms. First was the "learning skills tools," which primarily focused on creating activities and learning tools. Next was the "communication tools" that allow interaction between lecturers and students. The third was the "productivity tools" that entail the software functionalities provided by the LMSs (Kraleva et al., 2019).

In a sperate study, a model of an LMS system was presented wherein "teachers and learners had the same possibilities of control and action in the platform" (Ouadoud et al., 2016).

Usability

Alonso-Rios et al. (2010) mentioned ISO 9241-11 and thereby defined usability as "the extent to which specified users can use a product to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use." Usability was classified in ISO/IEC 9126-1 (2001) as one of the components that represented the internal and external software quality. It defined usability as "the capability of the software product to be understood, learned, used, and attractive to the user when used under specified conditions." In this case, five attributes of usability were listed, namely understandability, learnability, operability, attractiveness, and usability compliance (Alonso-Ríos et al., 2010).

Somesh (2020) mentioned bad usability led to the following: 1) decreased user engagement and retention rates; 2) reduced overall user experience; 3) failures while using the digital product; 4) negative impression, and 5) unnecessary costs for the project. He further explained that bad usability happened because of a slow response to the user's interaction. He also explained that it resulted from a frustrating or irritating user experience aside from the complex navigation and boring and unusable product (Somesh, 2020)

System Usability Scale (SUS)

The System Usability Scale (SUS) is a tool for measuring usability. Somesh (2020) described this tool as a "quick and dirty" yet reliable tool that consisted of a 10-item questionnaire for respondents. John Brooke created the SUS to evaluate various products and services, such as hardware, software, websites, and even applications. The SUS has become an industry standard and is referred to in over 1300 publications and articles (Brooke, 2013).

Kortum and Bangor (2013), also cited by Orfanou et al. (2015), used SUS to assess the usability of fourteen (14) common products every day. The authors' primary objective was to give researchers or even practitioners enough data so that they would be able to characterise and present the results of their usability investigations. Surprisingly, e-learning platforms were not included in the categories of web products chosen by the authors. Likewise, they did not include e-learning platforms in the nine (9) additional product categories that they would also study if they had the opportunity for a larger product list. More recently, SUS has been widely used to evaluate different learning management platforms such as SPIRAL, Moodle, and DELTA (Orfanou et al., 2015).

Microsoft (MS) Teams

MS Teams is a cloud-based digital hub that provides functionality for distance education, including meetings, file management, and other functions into a single LMS. It is available for free for educational institutions, and a paid subscription is also available for more functionalities (Buchal & Songsore, 2019; Pal & Vanijja, 2020).

In this pandemic where face-to-face is not permissible, MS Teams is one of the platforms to conduct classes online (Davidson et al., 2018). According to an article (Cury, 2021), over 183,000 educational institutions have adopted MS Teams. Last October, Microsoft claimed that it had reached 115 million daily active users (Microsoft, 2020). When compared to other applications, the key advantage of Microsoft Teams over its competitors is its deep integration with Office 365, including Word, PowerPoint, and Microsoft 365 (Cury, 2021).

Usability of MS Teams and Other LMSs

Similar studies have been conducted regarding the usability of MS Teams (Buchal & Songsore, 2019; Correia et al., 2020; Molich et al., 2004; Putri & Salsalina, 2021). These studies revealed positive feedback on the utilisation of the platform. MS Teams had the greatest growth during the pandemic (Basilaia & Kvavadze, 2020; Nguyen et al., 2020). By the end of 2020, 41% of organisations worldwide had adopted MS Teams (Tsai, 2018). Tsai (2018) surveyed 901 respondents from a variety of organisations, including small-to-medium-sized companies and corporations. Respondents represented various sectors, including manufacturing, healthcare, not-for-profit organisations, education, government, and finance. While some researches are rather restricted for instructional purposes, it offers a glimpse into the kind of environment students may encounter when they move into the job (Tsai, 2018).

Bergman (2020) also evaluated the usability of MS Teams using a qualitative method. The study included participants who were selected to be as close as possible in profile to the researchers' intended end-users of MS Teams. Each participant was given post-test interviews after every test. The product and thinking aloud methods were used. It means that, while using MS teams, the participant will continuously think out loud to identify how the users view the product and to know the misconceptions they might have. Results showed that there were usability problems during the log-on process. Sharing files and calling features of MS Teams were regarded as top strengths. In summary, the perceived usability of MS Teams in the study was high (Bergman, 2020). A similar study was conducted (R. J. M. Ventayen et al., 2018; R. J. Ventayen & Orlanda-Ventayen, 2018) to determine the usability of Google Classroom as an e-learning platform.

Research Objectives

The main objective of this study was to determine the usability of MS Teams as an eLearning platform for Business Administration Students. It is aimed to examine the students' experience using MS Teams and to determine the areas in which students experienced difficulties or conveniences.

Research Method

During the re-orientation of students in March 2021, the 459 Business Administration students coming from different year levels, ages, and genders (sex) were asked to answer the survey regarding the perceived usability of MS Teams. Google Form was used to collect responses. Google Sheets was used to export the data in comma-separated values or CSV format for pivot analysis.

The research instrumentation comprised of tailor-fit profiling with nine (9) items; an adapted SUS with ten (10) items and complemented by open-ended questions.

The researcher also computed the correlation matrix of the following variables: age, year level, and SUS score, using RapidMiner with the following processes, as shown in the figure below.

The correlation matrix for the identified variables of the study was supported by Vlachogianni and Tselios (2021) who previously opined MS Teams as a learning platform perceived to be satisfactory. The following RapidMiner operator determines correlation between all attributes and it can produce a weight vector based on these correlations. Correlation is a statistical technique that can show whether and how strongly pairs of Attributes are related.

Figure 1

RapidMiner Correlation Matrix Process
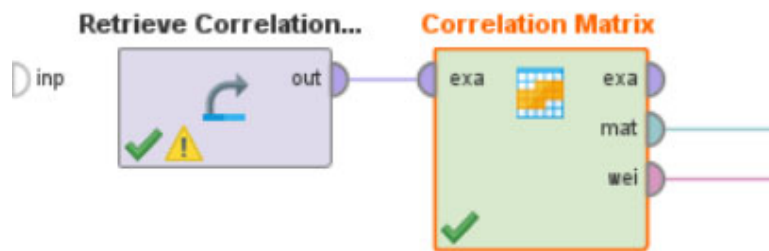
A Likert scale was used to interpret the statement of the SUS scale. 4.21 to 5-00 for strongly agree, 3.21 to 4.20 for agree, 2.61 to 3.40 for neutral, 1.81 to 2.60 for Disagree and 1.00 to 1.80 for Strongly Disagree.

Linear correlation depicted in Table 1 was also applied, including the variables of age, year level, and SUS score to determine whether a correlation exists among the variables.

Table 1

Interpretation for Linear Relationship (Pearson's Correlation Coefficient Scale)

Correlation	Strength of the linear relationship
1	Perfect
0.8 - 1.0	Very strong
0.60 – 0.80	Strong
0.40 – 0.60	Moderate
0.20 – 0.40	Weak
0.00 – 0.20	None to extremely weak

Findings

The majority of the students from the Business Administration programme are female which translated to 82.1%. In terms of age, the majority of the respondents are aged from 18 to 19, where 39.4% of the total respondents are in the First Year, followed by third year, with 33.6% and second year, with 22.2%.

In terms of MS Teams usability, 50% of the students' remarks were positive, with the remaining 50% neutral. Accordingly, the average score obtained by Business Administration for MS Teams was 55.76.

Table 2 shows the responses of the college students regarding the suitability of MS Teams in the Business Administration programme.

Table 2

System Usability Scale

Statement	1	2	3	4	5	AWM	Interpretation
I think that I would like to use this system frequently.	30	17	132	**217**	63	3.5795	Agree
I found the system unnecessarily complex.	21	110	**237**	82	9	2.8867	Neutral
I thought the system was easy to use.	29	37	141	**201**	51	3.4532	Agree
I think that I would need the support of a technical person to be able to use this system.	28	119	**183**	112	17	2.9368	Neutral
I found the various functions in this system were well integrated.	26	30	157	**210**	36	3.4357	Agree
I thought there was too much inconsistency in this system.	22	132	**210**	82	13	2.8519	Neutral
I would imagine that most people would learn to use this system very quickly.	29	25	144	**202**	59	3.5163	Agree
I found the system very cumbersome to use.	33	109	**215**	94	8	2.8584	Neutral
I felt very confident using the system.	26	35	157	**199**	42	3.4270	Agree
I needed to learn a lot of things before I could get going with this system.	36	71	**166**	149	37	3.1743	Neutral
Average Weighted Mean (Positive Statements)						**3.4824**	**Agree**
Average Weighted Mean (Negative Statements)						*2.9416*	*Neutral*

The students agreed with the usability of the MS Teams in all the positive statements, while all negative statements received a neutral mark. This is supported by the findings of Vlachogianni and Tselios (2021), who concluded that experience and extraversion demonstrated strongest positive correlation with perceived usability of MS Teams.

The following data shows the computed SUS score for the Business Administration students.

Average SUS Score

The average score of MS Teams, according to the Business Administration students, was 55.76. SUS score shown in this study can be viewed in at least five (5) ways, i.e., NPS, Acceptability, Adjective, Grade, and SUS score as shown in Figure 2.

Figure 2

Line of Interpretation
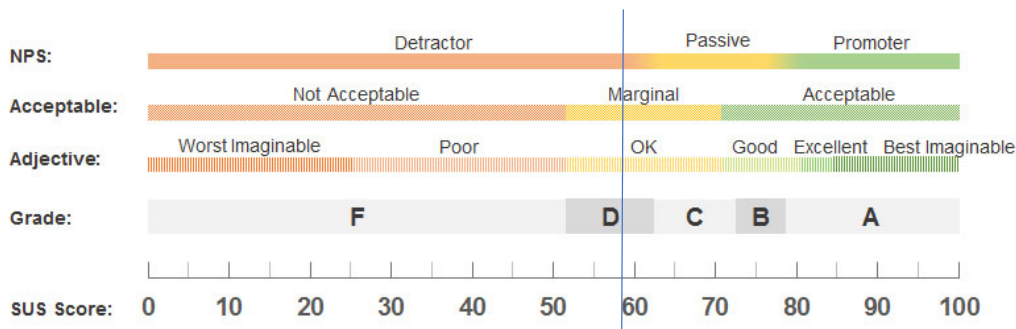
Source. Sauro (2018)

The study tried to examine if there was a correlation among the variables used. However, the correlation matrix showed an extremely weak or no correlation between age and the SUS score because the age of the college students complemented the usage of MS Teams in the Business Administration Department. It was the same result with the year level and the SUS score. The findings implied that there is no relationship between the age and the score and with the year level and the score. It inferred that the usage of MS Teams shall follow upon students' college level. This is in line with the findings by researchers Vlachogianni and Tselios (2021), who found that SUS scores were not significantly related with demographics (profiles), participant age, and gender, which is similar to the results of the current study.

The following data showed the correlation of the variables used in the study.

Table 3

Correlation Matrix

Attributed	Age	Year Level	SUS Score
Age	1	0.601	-0.002
Year Level	0.601	1	-0.032
SUS Score	-0.002	-0.032	1

SUS Score from the Faculty

In addition, six out of the twelve faculty members from the Business Administration Programme were also invited to complete the SUS survey based on their perceptions of the usability of MS Teams. The average score was 75.16, which can be interpreted as a Grade of B, an adjective of Good, Acceptable, and nearly Promoter. These scores contradicted the results of the survey from the students, which may be due to several factors, which includes operation on the full functionality of MS teams, utilization of the platform for other school activities, and utilization of other Office 365 applications linked to MS Teams.

Discussion

There are five (5) interpretations of the SUS. The first one is the SUS score using "percentile," which has an equivalent of 55.76. Percentile ranks can be calculated from raw SUS ratings, which can be interpreted as 55.76%. A second interpretation is "Grades," and ranges from A, which indicates top superior performance, to F for a failing performance, while C grade indicates an "average performance." In this regard, the rating of MS Teams, according to the Business Administration students, was D.

Another form of rating, in terms of Adjective is also possible by associating 1,000 SUS scores with a 7-point adjective scale (Bangor et al., 2008). The rating given by the Business Administration Students for the MS Teams is "OK".

In terms of acceptability, the same researcher (Bangor et al., 2008) assigned the following terms and conditions when the SUS was well above average or well below average. Acceptable roughly equated above 70, and unacceptable was below 50. The defined range for MS Teams was between 50-70 as "marginally acceptable," based on the responses from the Business Administration students.

Lastly, is the Net Promoter Score (NPS), which Fred Reichheld introduced (Laitinen, 2018; Mekonnen, 2006; Thompson, 2012), where MS Teams was found to be a detractor according to the students.

Due to almost neutral results from students' perceptions, the researchers conducted a short survey to determine underlying reasons for the scores given by the students. It was found that 89% of the total respondents were using mobile in accessing the MS Teams platform, where different functionalities of MS Teams were not fully utilised. Mobile phones are easy to operate yet portable, where students can easily access the MS Teams platforms compared to laptops or desktop computers. The different functionalities were not fully utilised because students were only familiar with reading and downloading posted materials, and attending online meetings in their scheduled synchronous classes. Another reason for giving a low score was external factors: low internet connectivity and slow devices.

In 2017, the College of Business and Public Administration surveyed the usability of Google Classroom as part of the GSuite (which is not Google Workplace) (R. J. M. Ventayen et al., 2018; R. J. Ventayen & Orlanda-Ventayen, 2018). Regarding the functionality of both platforms, MS Teams and Google Classroom had a core set of resources that covered the classroom basics. Students and teachers can use Word, Excel, and PowerPoint through MS Teams, for example. Google Docs, Sheets, and Slides provided similar features in Google Classroom. Teachers can easily submit class materials, grades, assignments and perform assessments using these online resources.

Based on the findings of the current study, the researchers recommend that the university continues utilising MS Teams as an e-learning platform for several programmes including Business Administration. A study should be conducted in succeeding years as the features of the LMS may be upgraded from time to time. It is also recommended that Pangasinan State University consider utilising several LMSs, such as Google Classroom, Moodle, and other instructional online platforms to satisfy online, blended, distance, and flexible teaching requirements.

Conclusions

MS Teams is a cloud-based platform whose primary goal is team collaboration. At Pangasinan State University, MS Teams is utilised as the official learning management platform for educators and students. Despite its limitations, MS Teams is user-friendly based on the perspective of the Business Administration students. Like other available learning management systems, MS Teams can create a highly productive and engaging work environment between fixed and remote collaborations across geographic distance and time zones. Based on the results, the respondents gave a neutral rating to the Microsoft product. While the students' ratings might not be as positive as expected, the researchers acknowledged the limitation of the study, which is limited to one programme of the University. Students also have limited exposure to the functionality of the system, where faculty members may encourage regularly reading announcements in any of their subjects under the Business Administration Department, submitting completed activities via only the MS Teams, and posting of instructional materials which students can view and download anytime, such as in the case of asynchronous classes. In contrast, the University's faculty members, the utilization of MS Teams is being maximized. The study shows that students should maximise their use of MS Teams to discover several functionalities that guide them to provide better feedback in scoring MS Teams as the adopted LMS of the institution. Succeeding studies on related topics such as LMSs, eLearning, NPS, and MS Teams are encouraged to validate existing claims and conclusions.

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