

## EXPLORING MICROSOFT TEAM'S PEDAGOGICAL EFFECTIVENESS IN HIGHER EDUCATION BY ASSESSING STUDENTS' ACCEPTANCE

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### Abstract

Microsoft Teams is very helpful because it simplifies the educational process for educators and students. Research has shown that it is an effective pedagogical tool, so it is widely used in colleges and universities. This research aims to adapt the Technology Acceptance Model (TAM) to investigate what influences students' attitudes towards using Microsoft Teams as a learning tool for education. Partial Least Square-Structural Equation Modeling (PLS-SEM) analysis of survey responses from 1.916 College students enrolled in an online minor in education found that students' ratings of the LMS's ease of use were significantly related to their ratings of its usefulness. In addition, students' behavioral intention to use is influenced in a positive way by their perception of how easy it is to use. Students' perceived usefulness of MS Teams in studying Education also improves their behavioral intention to use it. Finally, students' actual use of the platform is amplified by their behavioral intent to utilize. The results of this study enable the academic council and higher administration decide if the aforementioned LMS may continue to be used. Suggestions for further study and inquiry are also provided.

**Keywords:** Learning Management System; Pedagogical Platform; PLS-SEM; Technology Acceptance Model

### Introduction

During the outbreak of COVID-19, many schools have found that online learning is the most effective method of instruction. Despite the shift, higher education institutions will still rely heavily on e-learning to help students study (Pokhrel & Chhetri, 2021; Moustakas & Robrade, 2022). The implementation of online learning has many benefits, including adaptability, convenience, and student-teacher engagement (Almahasees et al., 2021). Microsoft Team remains one of the most popular platforms worldwide, despite the fact that many other suites have already been provided to students at a wide range of HEIs. This specific platform, when combined with an LMS, is an online program that centralizes communication, collaboration, and information storage in one Learning Management System hosted in the cloud (Rojabi, 2020). Furthermore, it streamlines the process of creating and distributing classroom resources, allowing teachers to save time on things like lesson planning, assignment distribution, and feedback delivery (Ismail & Ismail, 2021). As a centralized hub for class discussions and homework, MS Teams also facilitates easier interaction between instructors and their students. In addition to these, the monitoring methods associated with the tasks assigned allow teachers to right away recognize

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students who find themselves overwhelmed by their coursework (Olugbade & Olurinola, 2021). Similarly, having everything kept digitally in one place makes it easier for educators and students to maintain order in their files. Cloud-based, adaptable, easily available, and mobile-friendly are just a few of the reasons why Microsoft Teams is so popular. As a learning platform, this is very helpful for both instructors and students. Previous research strongly supports MS Teams' usefulness as a teaching tool (Henderson et al., 2020; Mahmud & Wong, 2023; Sobaih et al., 2021). Numerous studies have already been carried out in numerous fields all over the world in line with the success of Microsoft Teams as a useful instrument in enabling teaching and learning. On the other hand, in contrast to the setting of the Indonesia and Philippines, there were only a limited number of research studies completed in the context of HEIs in the Indonesia and Philippines, that focused on the effectiveness of its use in learning Education. As a result, there is a dire need for research to be conducted about the efficiency of Microsoft Teams. In accordance with the need to carry out research, the primary objective of this investigation is to investigate the factors that could influence the acceptance of students towards the usefulness of MS Teams as a teaching instrument in the learning of concepts and skills in Education. The results of this study may provide valuable information to the teachers, academic council, and school administrators to evaluate the efficacy of the LMS, and should be considered a deciding factor as to whether or not the college will continue to use the said system.

Despite the abundance of papers published during the pandemic on the topic of e-learning, online, or blended learning, there are still relatively few that focus on MS Teams' effectiveness as an LMS, particularly in terms of its effectiveness in delivering a quality experience in learning Education at a local college or university. Recent years, even pre-pandemic years, have seen a large number of studies conducted on MS teams at other countries' academic institutions (Almahasees et al., 2021; Lapitan et al., 2021; Pal & Vanijja, 2020; Zalat et al., 2021). Recent studies on the application of the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Extended Theory of Acceptance and Use of Technology (UTAUT2) have been widely disseminated and have provided a great deal of information to various HEIs regarding the factors that affect the implementation of MS Teams from to various disciplines on a global scale (Gharaibeh, 2023; Marcinkovic et al., 2021; Rudhumbu, 2022; Smolinski et al., 2022). Additional essential characteristics that predict students' use of a system have been added by other studies beyond what is accounted for by these models (Brandford Bervell et al., 2021; Mahamud et al., 2021; Oluyinka & Cusipag, 2021). These details are crucial for assisting other tertiary institutions in meeting the requirements of their students and providing them with a

superior educational experience. As previously pointed out, e-learning will continue to play an important role to various HEIs, and it may be used by both instructors and students to improve the quality of the educational experience. Even in this new normal of education, the use of MS Teams is still appropriate, as there are still other HEIs globally that are still under a full-online modality. Despite the fact that this LMS is still widely accessible and usable by teachers in a wide range of fields. For example, the published scholarly work of Mahmud and Wong (2023) has revealed that MS Teams has been successfully used by a private institution in Malaysia to provide online learning and communication, bridging the gap between students and faculty across both space and time, and a sustainable platform. Likewise, the study of Almodaires et al. (2021), unraveled that Microsoft Teams has been shown to be an efficient virtual learning platform due to its high standard of design, user friendliness, and range of features among Pre-service teachers from Kuwait who volunteered in the study. Additionally, the tool was very useful for facilitating dialogue and delivering constructive criticism. Pre-service educators, however, felt that the platform was inadequate for both individual and group study when compared to other online collaborative tools. Similarly, the inquiry conducted by Bin Mohd Khidir et al. (2022), also shown that the Microsoft Teams Application is useful for online education because of its special characteristics that boost student-teacher communication in Polimas. On the one hand, despite the best efforts of many schools, there are still a number of obstacles that need to be overcome before online instruction using Microsoft Teams can be widely adopted and used to improve students' access to high-quality education (Barrot et al., 2021; Olugbade & Olurinola, 2021; Sobaih et al., 2021). Despite the many difficulties and setbacks students face, research done during the pandemic and continuing into the new educational norm suggests that MS Teams is an effective platform for facilitating the teaching and learning process.

There have been several theories and models developed that center on the acceptance of new technology and are grounded in Information Systems (IS) (Taherdoost, 2018). Davis (1989) created a widely used and influential model called the Technology Acceptance model (TAM). Perceived ease of use and perceived usefulness are the two key characteristics that influence an individual's intention to adopt a new technology (Charness & Boot, 2016; He, Chen & Kitkuakul, 2018). To what extent a person thinks using a system will be easy is known as perceived ease of use (PEOU) (Al-Bashayreh et al., 2022; Davis, 1989), while the productivity and effectiveness of a platform and its overall benefits to improve users' performance is known as perceived usefulness (PU) (Davis, 1989; Tahar et al., 2020). The application of this model is widespread across various disciplines in education (Castiblanco Jimenez et al., 2020; Zhou et

al., 2022), industries (Peng & Yan, 2022; Portz et al., 2019), and even using TAM with other additional factors (He et al., 2018). In addition, PEOU and PU have been established as primary external factors that affect students' behavioral intention (BI) and actual use (AU) of the system through the application of TAM to the assessment of their acceptance of learning platforms like Microsoft Teams (Al Enezi et al., 2022; Pal & Vanijja, 2020). TAM has a long track record of success in gauging the public's openness to new technologies. According to the concept, when students are introduced to new technology, PEOU and PU are the most important external elements in determining whether or not they would adopt it. This study is part of an ongoing investigation that is using TAM to examine the causes and measure the degree to which students in Education classes are willing to use Microsoft Teams as a learning platform.

The following hypotheses will be tested in light of the literature review conducted:

**H1:** Perceived ease of use positively influences the perceived usefulness of Microsoft Teams in learning education.

**H2:** Perceived ease of use positively influences students' behavioral intention to use Microsoft Teams in learning education.

**H3:** Perceived usefulness positively influences students' behavioral intention to use Microsoft Teams in learning education.

**H4:** Behavioral intention of students influences the actual use of Microsoft Teams in learning education.

## Method

### Participants

This research involved first-and second-year students from several education programs (e.g., physical education and religious education course) minor in the first semester of the 2021-2022 Academic Year at a university in Indonesia and Philippines. Purposive sampling identified this study's respondents. This non-probability sampling method involves the researcher selecting study participants based on their characteristics. Raosoft Sample Size Calculator determined this study's target sample. 334 individuals are recommended among 2,500 first-and second-year students. After data cleaning, 1,916 (Indonesia,  $n = 916$ , Philippines,  $n = 1000$ ) students completed the survey questionnaire and were accepted for data analysis.

### Research instrument

An online survey (Google forms) was distributed to all of the intended respondents in order to collect the data. The survey is divided into two (2) parts: the first part of the questionnaire collects respondents' demographic information, such as their gender, and the second portion collects information regarding the Technology Acceptance Model, which consists of four constructs. This includes Perceived Usefulness (PU), Perceived Ease of Use (PEOU), Behavioral Intention (BI), and Actual Use (AU). Responses are recorded on a seven-point Likert scale ranging from 1 (extremely disagree) to 7 (extremely agree).

### Procedures

The respondents were informed about the study's objectives, the instrument, and the constructs that will be measured. Additionally, the researcher has provided the benefits of the study for the college and the scientific community. The respondents were required to provide their consent by clicking the agreement attached in the Google forms. They were also given the freedom to decide whether to participate or decline. Participants were also informed that there might be minor risks in their participation in the study, such as the feeling of being uncomfortable in answering personal and sensitive survey questions. Likewise, they were told that no monetary compensation would be provided for giving information. Given these circumstances, participants were free to withdraw or to ask for a debriefing of the study anytime.

### Statistical analysis

Using Smart PLS 4, the Partial Least Squares-Structural Equation Modelling (PLS-SEM) was employed to examine the factors that influence students' adoption of Microsoft Teams as a learning platform in education. The statistical analysis employed for this study is ideally suited to its objectives (Ji et al., 2021). To establish convergent validity for the measurement model, (Hair et al., 2021) advised researchers to evaluate the outer item loadings and average variance extracted (AVE). In assessing and establishing discriminant validity, the Fornell-Larcker and Heterotrait-Monotrait criteria were also applied, as suggested by Hair et al. Last but not least, the path coefficients and coefficient of determination (R<sup>2</sup>) were calculated for the structural model. IBM SPSS version 27 was used to conduct descriptive statistical analyses of the demographic characteristic of respondents. In this instance, frequency (f) and percentage (%) were implemented.

## Results and Discussion

Table 1 illustrates the demographic characteristics of the respondents who have answered the online survey questionnaire. The results revealed that most respondents are female, which constitutes 62.3% of the collected data, while only 37.7% are males

Results of data analyses can be presented in tables, graphs, figures or any combination of the three. Tables, graphs, or figures should not be too long, too large, nor too many. The writer is advised to use decent variation in presenting tables, graphs, or verbal description. All displayed tables and graphs should be referred to in the text. The format of tables is shown in Table 1. Tables do not use column (vertical) lines and row (horizontal) lines are used only for the head and tail of the table. The font of the table entry may be reduced. Figures in the table should not be over-repeated in the narration before or after the (Table 1).

**Table 1.** Demographic characteristics.

| Item   | Values | f    | Percentage |
|--------|--------|------|------------|
| Gender | Male   | 723  | 37.7       |
|        | Female | 1193 | 62.3       |

In order to measure the reliability of each item, a factor loading analysis should be performed. According to Hair et al (2021), a threshold value of equal to or greater than 0.7 for each item's loading is considered reliable. The Cronbach's Alpha Value and composite reliability should be equal to or greater than 0.7. Based on Table 2, all items are reliable and satisfy the criteria except for PU1, PU6, and PU7 since their factor loadings were below 0.7. Therefore, PU1, PU6, and PU7 were removed from the construct's structure. On the one hand, the average variance extracted (AVE) is used to validate constructs (dos Santos & Cirillo, 2021). It is also defined as the grand mean value of the squared loadings of the items related to the construct and the standard measure for establishing convergent validity. In order to determine the convergent validity, AVE should be at least 0.5 or greater, and the corresponding p-value must be at most 0.5 (Hair et al., 2021; Rodriguito et al., 2022). As shown in Table 2, Cronbach's Alpha and the composite reliability values are more significant than 0.7, and the AVE values are greater than 0.5. Hence, convergent validity has been established (Table 2).

In order to establish the discriminant validity, the Fornell-Larcker criterion, cross-loadings, and the Heterotrait-Monotrait Ratio should be inspected. Regarding the Fornell-Larcker criterion, the square root of AVE (diagonal value) in each variable should surpass the correlation of latent variables, as presented in (Table 3).

For the cross-loadings, the loading of each indicator should be higher than the loadings of its corresponding variables' indicators, as shown in (Table 4).

The Heterotrait-Monotrait ratio (HTMT), a value of less than 0.85, should be confirmed. However, in a more liberal approach, a threshold of .90 may be warranted, as TAM is an excellent example of this given to the study's large sample size (Henseler et al., 2015). As can be seen in Table 5, discriminant validity has been established (Table 5).

### Structural Model Assessment

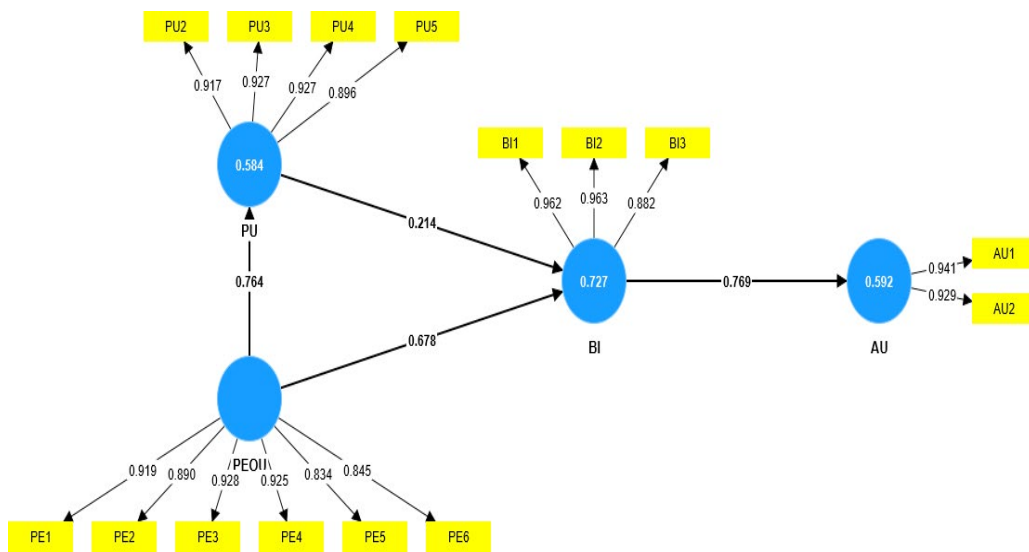
The exploratory power of the model has been evaluated by measuring the discrepancy amount in the dependent variables of the model. As Hair et al. (2021) have stated, the R<sup>2</sup> and the path coefficients are the essential measures for assessing the structural model. As seen in Figure 1, the model has R<sup>2</sup> value of PU is 58.4%, BI 72.7%, and AU 59.2% respectively (Table 6).

Path analysis results for each hypothesis were displayed in Table 6 and Figure 1. The results show that all of the assumptions examined for this research were correct, proving that all of the hypothesized connections between the IV and DVs are relevant. The first hypothesis (H1) is supported by the data ( $B = 0.764$ ,  $p < .05$ ), describes the path between PEOU and PU which the finding indicates that the perceived ease of use increases perceived usefulness of MS Teams in learning Education. The second hypothesis, H2 ( $B = 0.678$ ,  $p < .05$ ), shows the relationship between PEOU and BI, with the findings indicating that students' BI to use MS Teams for PE is influenced by their perceptions of its usability. Students' perceived usefulness of MS Teams for learning Education enhances their behavioral intention to use it H3 ( $B = 0.214$ ,  $p < .05$ ). The data also showed that students' behavioral intentions have a beneficial effect on their actual use of the educational platform H4 ( $B = 0.769$ ,  $p < .05$ ).

The findings suggest that PEOU and PU have a beneficial effect on students' intentions to use MS Teams to study a range of education-related topics. Therefore, the results are consistent with the discoveries of Kassim (2021), suggesting that the platform may be used with minimal effort and is simple to traverse. In addition, MS Teams' popularity among students may reflect their belief that the software is a useful tool for improving their academic achievement. Likewise with the findings of Almodaires et al. (2021), Pre-service

**Table 2.** Measurement Model Results.

| Constructs                  | Items | Loadings | Cronbach's Alpha | Composite reliability | Average Variance Extracted |
|-----------------------------|-------|----------|------------------|-----------------------|----------------------------|
| Perceived Usefulness        | PU2   | 0.917    | 0.937            | 0.955                 | 0.84                       |
|                             | PU3   | 0.927    |                  |                       |                            |
|                             | PU4   | 0.927    |                  |                       |                            |
|                             | PU5   | 0.896    |                  |                       |                            |
| Perceived Ease of Use       | PE1   | 0.919    | 0.948            | 0.95                  | 0.794                      |
|                             | PE2   | 0.89     |                  |                       |                            |
|                             | PE3   | 0.928    |                  |                       |                            |
|                             | PE4   | 0.925    |                  |                       |                            |
|                             | PE5   | 0.834    |                  |                       |                            |
|                             | PE6   | 0.845    |                  |                       |                            |
| Behavioral Intention to Use | BI1   | 0.962    | 0.929            | 0.955                 | 0.877                      |
|                             | BI2   | 0.962    |                  |                       |                            |
|                             | BI3   | 0.883    |                  |                       |                            |
| Actual Use                  | AU1   | 0.941    | 0.857            | 0.862                 | 0.875                      |
|                             | AU2   | 0.929    |                  |                       |                            |



**Figure 1.** Path analysis.

**Table 3.** Fornell-Larcker Criterion Results.

|      | AU    | BI    | PEOU  | PU    |
|------|-------|-------|-------|-------|
| AU   | 0.935 |       |       |       |
| BI   | 0.769 | 0.936 |       |       |
| PEOU | 0.777 | 0.841 | 0.891 |       |
| PU   | 0.655 | 0.732 | 0.764 | 0.917 |

**Table 4.** Cross Loading Results.

|     | AU    | BI    | PEOU  | PU    |
|-----|-------|-------|-------|-------|
| AU1 | 0.941 | 0.752 | 0.76  | 0.646 |
| AU2 | 0.929 | 0.685 | 0.691 | 0.576 |
| BI1 | 0.728 | 0.962 | 0.817 | 0.689 |
| BI2 | 0.729 | 0.962 | 0.814 | 0.691 |
| BI3 | 0.704 | 0.883 | 0.73  | 0.676 |
| PE1 | 0.712 | 0.757 | 0.919 | 0.703 |
| PE2 | 0.694 | 0.76  | 0.89  | 0.686 |
| PE3 | 0.729 | 0.791 | 0.928 | 0.707 |
| PE4 | 0.734 | 0.764 | 0.925 | 0.707 |
| PE5 | 0.607 | 0.658 | 0.834 | 0.589 |
| PE6 | 0.669 | 0.756 | 0.845 | 0.683 |
| PU2 | 0.582 | 0.667 | 0.666 | 0.917 |
| PU3 | 0.606 | 0.676 | 0.727 | 0.927 |
| PU4 | 0.587 | 0.672 | 0.665 | 0.927 |
| PU5 | 0.624 | 0.668 | 0.74  | 0.896 |

**Table 5.** Heterotrait-Monotrait ratio (HTMT).

|      | AU    | BI    | PEOU  | PU |
|------|-------|-------|-------|----|
| AU   |       |       |       |    |
| BI   | 0.861 |       |       |    |
| PEOU | 0.859 | 0.895 |       |    |
| PU   | 0.729 | 0.785 | 0.809 |    |

**Table 6.** Hypotheses Test Results.

| Hypothesis | Path      | Path Coefficient | p-value | Decision  |
|------------|-----------|------------------|---------|-----------|
| H1         | PEOU → PU | 0.764            | 0       | Supported |
| H2         | PEOU → BI | 0.678            | 0       | Supported |
| H3         | PU → BI   | 0.214            | 0       | Supported |
| H4         | BI → AU   | 0.769            | 0       | Supported |

teachers in Kuwait found Microsoft Teams to have a high level in design, user friendliness, and a breadth of functionality, making it an effective virtual learning platform. Furthermore, the tool served as an excellent medium for open communication and the delivery of important feedback. Similarly, the use of the aforementioned platform as a teaching tool in the context of education led to significantly increased student motivation. The results are consistent with those of other studies on the efficacy of MS Teams carried out by different researchers in different fields and at different educational institutions (Gharaibeh, 2023; Marcinkovic et al., 2021; Rudhumbu, 2022; Smolinski et al., 2022). Additionally, PEOU and PU are the only external factors considered in this study's analysis of how student behavior intentions and platform usage are influenced. Other factors were also discovered to affect

the BI and AU of students, such as behavior intention, social expectancy, and performance expectancy (Mokhtar & Abu Karim, 2021), based on the Unified Theory of Acceptance and Use of Technology or UTAUT. Additionally, likewise with UTAUT, facilitating conditions, hedonic motivations, and event habits may also influence BI and AU of students towards the platform as per the Extended Unified Theory of Acceptance and Use of Technology or UTAUT2 (Alotumi, 2022; Venkatesh et al., 2016). As such, the scope of the research is confined to the constructs of the Technology Acceptance Model. As was previously indicated, the results of this study are useful for Mabalacat City College, particularly for the faculty, academic council, and higher administration. When considering whether or not to keep using MS Teams as an LMS, the educational institution will take the important findings discovered into account. This is consistent with the college's commitment to provide outstanding learning experiences.

### Conclusion

The PEOU and PU were found to have a substantial effect on the BI and AU of MS Teams as a pedagogical aid for learning ideas and acquiring skills in Education among students using the Technology Acceptance Model (TAM). It is found that the most important aspects of using this particular platform are familiarity with its use and ease of use. Moreover, one of the striking discoveries made is that students may rely on MS Teams as a learning platform where they may swiftly study and acquire abilities while capitalizing on the school's educational system. Teachers, the academic council, and possibly even the school administration could benefit greatly from these discoveries. This conclusion is grounded in the fact that the aforementioned constructs show how dependent on this technology is. Providing students with a variety of training chances to familiarize themselves with the extensive and useful features MS Teams has to offer is strongly recommended in order to effectively apply this instructional tool.

The data gathered and analyzed in this study are also limited to students in a selected college in the Philippines, thus they may not be representative of the broader college student population in the Indonesia and Philippines, or globally. As a result, additional investigation is needed to confirm or disprove the findings of this study by gathering information from additional colleges and universities in the province. In addition, future researches may be interested in incorporating the faculty members to comprehend how the educators may perceive the utilization of the aforementioned educational platform and its efficacy by using the same model or other produced theories. Since there is a dearth of research conducted in the current setting of this investigation, this study contributes to the body of knowledge and existing literature by investigating and identifying the factors that influence students' acceptance of MS Teams at local colleges and universities. Finally, the study showed that its findings ought to support and fill the gap in research about the students' acceptance and the usefulness of MS Teams as a pedagogical instrument in providing excellent education.

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