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The Adoption of Learning Management System in Teaching and Learning in the New Normal

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ABSTRACT: In the middle of a worldwide health crisis that threatens lives and containment measures that endanger our way of life, we are confronted with the sobering reality that the world we return to will be irrevocably altered. Thus, this deadly situation has flipped the offline teaching process and paved the way towards online-based learning. In today's scenario, learning has stepped into the digital world, where teachers and students are virtually connected. It is also the time where the teaching and learning activities were immediately shifted to full web-based learning. Despite the obstacles faced by both teachers and learners, online learning has proven to be a cure for this unprecedented worldwide pandemic. Transitioning from conventional face-to-face learning to online learning may be a completely different experience for both learners and educators, which they must adjust to since there are few or no other options. Hence, in this research investigation, the researcher explored the construct validity of the Technology Acceptance Model (TAM) in analyzing the factors that influence the acceptance of the use of technologies based on the user's perspective in a higher educational institution in the Philippines.

The analysis revealed that utilizing Google Classroom as an LMS was beneficial to the faculty members since it allowed them to complete their academic tasks swiftly and effortlessly. They also have positive attitude towards using LMS and agreed that using various online platforms was simple and easy for them. In addition, the findings also suggest that faculty members have had a great experience utilizing online learning through Google Classroom in their classes, and they are confident that they will continue to use this Learning Management System in the next school years and will promote it to their colleagues. Therefore, educational institutions should pay more attention on the development of its educational and ICT infrastructure most especially in this time of pandemic wherein web-based learning is the current trend in our educational landscape. Furthermore, policy makers should anchor their decisions on the findings of this study most especially on the procurement of various educational technologies and/or ICT infrastructures in their respective educational institutions. Also, educational administrators should develop an understanding on how various factors or variables significantly influences their intention to use a particular learning management system.

KEYWORDS: New Normal, Learning Management System, Technology Adoption, COVID-19 Pandemic

I. INTRODUCTION

The COVID-19 pandemic has become a global health issue. The emergence of this pandemic caused enormous disruptions in people's lives all across the world, and it has had a significant influence on education. This pandemic situation forced educational institutions to shut down to control the spread of this virus, thereby making the teaching professionals think of alternative teaching methods during this lockdown to continue to deliver education and sustain student academic progress. Thus, this deadly situation has flipped out the offline teaching process and paves the way towards web-based learning (Kumar, 2020). Web-based learning is defined as learning that makes use of Information and Communication Technologies (ICTs). In today's scenario, learning has stepped into the digital world where teachers and students are virtually connected. It is also the time where the teaching and learning activities were immediately shifted to full web-based learning.

As the Philippines also faced a critical situation due to the rise of the said health crisis, it has become urgent to explore other innovative learning modalities that will facilitate migration from traditional to remote teaching and learning. Higher Education Institutions (HEIs) in the country adopted a flexible learning scheme. Policies implemented include guidelines for preventing, controlling, and mitigating the spread of COVID-19 in Higher Education Institutions (HEIs). However, despite the

concerted efforts made by the administrators and educators to continue teaching and learning beyond the usual face-to-face instruction, teachers were not yet ready for alternative modes of teaching.

In the last decade, online learning has expanded rapidly due to its convenience (Junaini, 2020). However, the world is shaken by the outbreak of the Coronavirus (COVID-19). The outbreak of this pandemic across the world has profoundly altered almost all aspects of life, including education, and the Philippines has not been an exception to these changes. The difficulty of handling the outbreak from spreading more widely has made world leaders develop stringent rules to break the chain of the spread of COVID-19. With this, the implementation of lockdown and social distancing has been enforced as a preventive measure to spread the coronavirus infection, resulting in the complete paralysis of global activities. Because of this crisis, Higher Educational Institutions (HEIs) have resorted to web-based learning to deliver the content of their curriculum on various platforms. Since the outbreak of the COVID-19 virus, educational institutions worldwide have migrated from traditional learning methods to impart education through online means. This reflects that the education system has been suddenly shifted from the conventional classroom environment to electronic devices.

According to Hadjerrouit (2010), web-based learning resources are potentially powerful tools for enhancing teaching and learning processes in school education. These platforms provide teachers and learners with a wide range of new and exciting experiences that are not possible in a traditional classroom. Contrary to face-to-face learning, this learning modality emphasizes internet-based courses which are offered synchronously and asynchronously. Synchronous learning is a form of learning with direct interactions between students and teachers while simultaneously using online forms such as conferences and online chat. Meanwhile, asynchronous learning is a form of learning indirectly using an independent learning approach. Through digital learning, teachers can cater to children's digital skills, which are on the brink of cyber risk, into the educational opportunities to succeed in future ventures, especially in this pandemic where children are wholly dependent on online learning.

Amid the COVID-19 situation, the Philippine Commission on Higher Education (CHED) prepares for the new normal in tertiary education. One of the recommendations of the CHED for State Colleges and Universities (SUCs) is the adoption of flexible learning. Although according to CHED, flexible learning may not necessarily mean that instruction will be delivered purely online. Online education is an inevitable option to decongest classrooms amid physical or social distancing protocol and help mitigate COVID-19 transmission in schools SUCs start to open their campuses and begin classes again. At the same time, it may be argued that complete online modality of the instruction can be feasible and even though Filipinos are among the top users of the Internet worldwide, the lack of preparation of faculty members to conduct online classes along with the problem long before on poor internet connection in the country pose challenges in the adoption of online education in the Philippine context.

There are much enthusiasm and optimism regarding open online learning; however, there are significant barriers that learners still encounter in attempting to succeed in online courses (Marcial, 2020). Like in any country affected by this global crisis, students in the Philippines also confronted several interrelated barriers as they tried to adapt to online learning. Baticulon et al. (2020) identified barriers to online learning in the time of COVID-19 among medical students. They found out that one of the barriers that the students have faced is the limited access to internet resources. This was also corroborated with the study conducted by Marcial et al. (2020), which reveals that access to the internet and technical skills in online platforms was considered a strong barrier to online learning among students and teachers. In addition, this finding also supports the study conducted by Moralista and Oducado (2020), which reveals that teachers have experienced difficulty in terms of computer competency and online teaching. Aside from these challenges the teachers faced, the researcher believes that there is a need for planning, monitoring, and evaluating the learning system being adopted in this new normal. Hence, the need to develop the learning management system in an institution of higher learning in this new normal becomes the impetus of this study.

II. METHODOLOGY

A descriptive cross-sectional study with internal comparisons was utilized in this study. This study was conducted through an online survey. A written questionnaire consisted of two components. The first part includes the teachers' demographic characteristics that include age, subjects handled, and length of service. The second part encompasses the teacher's perception of usefulness, ease of use, attitudes towards using, and intention to use web-based learning. This includes 23 statements using a 5-point Likert scale. To test the reliability of the survey instrument, this was pilot tested among selected high school teachers from public and private secondary schools in the city. Cronbach's alpha was used to test the internal consistency of the questionnaires. The results showed that Cronbach's alpha of perceived usefulness (PU) was 0.876, perceived ease of use (PEOU) was 0.848, attitude toward using (ATU) was 0.882, and the behavioral intention was 0.803. These alpha values indicate that the survey questionnaires were highly reliable.

To answer the questions raised in this study, both descriptive and inferential measures were employed. Descriptive statistics such as frequency count, percentages, and mean were utilized in this study. These measures will describe the respondents' demographic characteristics and assess their challenges in teaching this pandemic through web-based learning.

On the other hand, inferential statistics such as Pearson- correlation and analysis of variance (ANOVA) were utilized to test the hypotheses stated in this study. Pearson Product Moment Correlation was used to determine the relationship between the following: (a) perceived usefulness (PU) and perceived ease of use (PEOU); (b) perceived usefulness (PU) and attitude toward using (ATU); (c) perceived ease of use (PEOU) and attitude toward using (ATU); and (d) attitude toward using (ATU) and behavioral intention to use (BIU). Furthermore, Analysis of Variance (ANOVA) was used to test the differences in the respondents' technology acceptance when they grouped according to age, gender, academic rank, subjects handled, number of seminar workshops and training in online teaching attended, and length of service. All statistical computations were tested at 0.05 level of significance using Statistical Package for the Social Sciences (SPSS).

III. RESULTS AND DISCUSSIONS

Respondents' Evaluation on the Use of Online Learning

The following tables show the respondents' evaluation on the use of online learning through Google Classroom as a Learning Management System (LMS). As mentioned in the previous part of this study, the Technology Acceptance Model (TAM) was used to assess the use of Google Classroom as perceived by the respondents in terms of its usefulness, ease of use, attitude toward using it, and behavioral intention to use this online learning platform.

Table 1.a Respondent's Evaluation on the Usefulness of Online Learning

STATEMENTS	MEAN RATING	QUALITATIVE DESCRIPTION
1. *Using the Google Classroom in my class helps me to accomplish tasks more quickly*	4.34	Strongly Agree
2. *Using the Google Classroom improves my teaching performance*	3.86	Agree
3. *Google Classroom enhances my effectiveness at work*	3.83	Agree
4. *Google Classroom makes it easier to do my work*	4.07	Agree
5. *Using Google Classroom supports critical aspects of my job*	4.01	Agree
6. *Using Google Classroom will reduce the time I spend on unproductive activities*	4.10	Agree
OVERALL MEAN RATING	**4.04**	**Agree**

Legend:

1.0 – 1.79 – Strongly Disagree; 1.80 – 2.59 – Disagree; 2.60 – 3.39 – Neutral; 3.40 – 4.19 – Agree; 4.20 – 5.0 – Strongly Agree

Table 1.a shows the evaluation on the usefulness of Google Classroom as perceived by the respondents. Based on the analysis, out of the six identified statements, statement 1: "*using the Google Classroom in my class helps me to accomplish tasks more quickly"* was strongly agreed by the faculty members having a mean rating of 4.34. Additionally, the mean rating of 4.10 indicates that the respondents agreed on statement 6 that *"using Google Classroom will reduce the time I spend on unproductive activities".* They also agreed on the statement that "*Google Classroom makes it easier to do my work"* with a mean rating of 4.07. Further investigation finds that the overall mean rating of 4.04 suggests that faculty members thought that utilizing Google Classroom was beneficial since it allowed them to complete their academic tasks swiftly and effortlessly.

Table 1.b Respondent's Evaluation on the Ease of Use of Online Learning

STATEMENTS	MEAN RATING	QUALITATIVE DESCRIPTION
1. *Learning to operate the Google Classroom has been easy for me*	4.17	Agree
2. *It is easy for me to become skillful at using the Google Classroom*	4.14	Agree

3. *My interaction with the Google Classroom is clear and understandable*	4.16	Agree
4. *I find the Google Classroom to be flexible to interact with*	4.31	Strongly Agree
5. *I find the Google Classroom easy to use in my class*	4.35	Strongly Agree
OVERALL MEAN RATING	**4.22**	**Strongly Agree**

Legend:

1.0 – 1.79 – Strongly Disagree; 1.80 – 2.59 – Disagree; 2.60 – 3.39 – Neutral; 3.40 – 4.19 – Agree; 4.20 – 5.0 – Strongly Agree

As shown in Table 1.b, the faculty members highly agreed on the simplicity of using Google Classroom, with an overall mean rating of 4.22. Moreover, among the five identified statements, two statements were strongly agreed by the respondents as indicated by their mean ratings. Statement 5: "*I find the Google Classroom easy to use in my class*" got the highest mean rating of 4.35. This data was followed by statement 4: "*I find the Google Classroom to be flexible to interact with*" having a mean score of 4.31. These data clearly suggest that faculty members perceived that using the Google Classroom was simple and easy to use.

Table 1.c Respondent's Attitude toward Using Google Classroom

STATEMENTS	MEAN RATING	QUALITATIVE DESCRIPTION
1. *Google Classroom enables me to accomplish tasks more quickly*	4.25	Strongly Agree
2. *Using Google Classroom in my class is good*	4.18	Agree
3. *Using Google Classroom in my class is favorable*	4.14	Agree
4. *It is a trend to use Google Classroom in my class*	4.09	Agree
5. *It is valuable to use Google Classroom in my class.*	4.01	Agree
6. *I enjoy using Google Classroom in my class*	3.98	Agree
7. *Overall, I feel that Google classroom is useful in my job*	3.96	Agree
OVERALL MEAN RATING	**4.08**	**Agree**

Legend:

1.0 – 1.79 – Strongly Disagree; 1.80 – 2.59 – Disagree; 2.60 – 3.39 – Neutral; 3.40 – 4.19 – Agree; 4.20 – 5.0 – Strongly Agree

With regard to the attitude of the respondents toward using Google Classroom, Table 1.c indicates that the faculty members have positive attitude towards using Google Classroom as a Learning Management System (LMS) as described by the overall mean rating of 4.08. This implies that the respondents' perceived the use of Google Classroom to be significant especially in teaching this new normal. Furthermore, the analysis also reveals that the respondents strongly agreed with the statement "*Google Classroom enables me to accomplish tasks more quickly*" having a mean rating of 4.25. They also agreed on the statement that "*Using Google Classroom in my class is good*" with a mean score of 4.18. Also, the mean rating of 4.14 indicates that the respondents agreed that "*Using Google Classroom in my class is favorable*".

Table 1.d Respondent's Behavioral Intention to Use Google Classroom

STATEMENTS	MEAN RATING	QUALITATIVE DESCRIPTION
1. *I intend to use Google Classroom in my class in the future*	4.17	Agree
2. *I'd love to use Google Classroom in my class*	4.12	Agree
3. *I increase the occurrences of using Google Classroom in my class*	4.11	Agree
4. *I will probably use or continue using the Google Classroom in my class*	3.87	Agree
5. *I will recommend others to use Google Classroom in their classes*	3.64	Agree
OVERALL MEAN RATING	**3.98**	**Agree**

Legend:

1.0 – 1.79 – Strongly Disagree; 1.80 – 2.59 – Disagree; 2.60 – 3.39 – Neutral; 3.40 – 4.19 – Agree; 4.20 – 5.0 – Strongly Agree

The evaluation of the respondents in terms of their behavioral intention to utilize Google Classroom as an online learning platform is shown in Table 1.d. According to the findings, the respondents agreed with all five of the highlighted assertions. The highest mean rating was 4.17 for Statement 1: *"I intend to use Google Classroom in my class in the future."* This was followed by Statement 2: *"I'd love to use Google Classroom in my class,"* which received a 4.12 average rating. These findings suggest that CTE faculty members have had a great experience utilizing online learning through Google Classroom in their classes, and they are confident that they will continue to use this Learning Management System in the next school years and will promote it to their colleagues.

Regression Analysis of Perceived Ease of Use (PU) vs Perceived Usefulness (PU)

The following table shows the relationship between the respondents' perceived ease of use and usefulness of using Google Classroom. Pearson Product Moment Correlation was used with the aid of Statistical Package for Social Sciences (SPSS). This was tested at 0.05 level of significance.

Table 2. Relationship between Perceived Ease of Use and Perceived Usefulness

	Correlation Coefficient	Description	p-value	Interpretation
Perceived Ease of Use (PEU) and Perceived Usefulness (PU)	0.71	High Correlation	0.031**	Significant

Legend: ***Significant at 0.05 level of significance*

The link between the respondents' perceptions of the ease of use and usefulness of conducting online learning using Google Classroom is shown in Table 2. It can be gleaned that the correlation coefficient of 0.71 indicates that there is a high positive correlation between the respondents' perception on the ease of use and usefulness of using Google Classroom. The p-value of 0.031 implies that the relationship between perceived ease of use and perceived usefulness toward online learning was statistically significant. This indicates that teachers who have no difficulties with Google Classroom find it beneficial in their academic work. This supports with the study conducted by Angela et al (2018) which reveals that there is a significant correlation between perceived ease of use and usefulness of e-learning system.

Regression Analysis of Perceived Ease of Use (PU), Perceived Usefulness (PU), and Attitude towards Using (ATU) Google Classroom

The following table shows the relationship between the respondents' perceived ease of use and usefulness of using Google Classroom and their attitude towards using it. Pearson Product Moment Correlation was also used with the aid of Statistical Package for Social Sciences (SPSS). This was tested at 0.05 level of significance.

Table 3. Relationship between Perceived Ease of Use and Perceived Usefulness and their Attitude towards Using Google Classroom

Variable	Correlation Coefficient	Description	p-value	Interpretation
Perceived Ease of Use (PEU)	0.89	Very High Correlation	0.004**	Significant
Perceived Usefulness (PU)	0.92	Very High Correlation	0.001**	Significant

Legend: ***Significant at 0.05 level of significance*

As depicted by the analysis presented by Table 3, the correlation value of 0.89 suggests that perceived ease of use and attitude toward Google Classroom are highly correlated. The statistical significance of the association between these two variables is further confirmed by the p-value of 0.004. Furthermore, the study found a strong link between perceived usefulness and attitudes toward online learning. Their association is statistically significant at the 0.05 level of significance, as indicated by the p-value of 0.001. As a result, faculty members who find Google Classroom, as a Learning Management System, easy to use and find it beneficial in performing their academic tasks have a favorable impression towards it.

Regression Analysis between Respondents' Attitude towards Using (ATU) Google Classroom and their Behavioral Intention to Use it (BIU)

The following table shows the relationship between the respondents' attitude towards using Google Classroom and their behavioral intention to use it. Pearson Product Moment Correlation was used with the aid of Statistical Package for Social Sciences (SPSS). This was tested at 0.05 level of significance.

Table 4. Relationship between Perceived Ease of Use and Perceived Usefulness

	Correlation Coefficient	Description	p-value	Interpretation
Attitude (ATU) and Behavioral Intention (BIU)	0.89	Very High Correlation	0.005**	Significant

Legend: ***Significant at 0.05 level of significance*

As described by the analysis presented in Table 4 above, the correlation coefficient of 0.89 indicates that there is a very high positive correlation between the respondents' attitude and their behavioral intention to use the Google Classroom. This implies that those faculty members who have positive attitude towards using Google Classroom are certain to use this platform in the future. Further analysis also indicates that the p-value of 0.005 suggests that the relationship between attitude and behavioral intention to use Google Classroom is statistically significant. This corroborates with the findings of Angela et al (2018) which reveals that the link between attitude and behavioral intention to use is significant.

Differences in Technology Acceptance in Using Online Learning Technologies

The following table shows the difference in technology acceptance in using online learning technologies when the respondents were grouped according to age, gender, academic rank, subjects handled, number of seminar workshops attended and length of service. To test the significant differences, Analysis of Variance was used with the aid of Statistical Package for Social Sciences (SPSS) tested at 0.05 level of significance.

Table 5. Differences in Technology Acceptance in Using Google Classroom

Variable	p-value	Interpretation
Age	0.003**	Significant
Gender	0.184	Not Significant
Academic Rank	0.209	Not Significant
Subjects Handled	0.026**	Significant
Department	0.092	Not Significant
Employment Status	0.087	Not Significant
Seminars Attended	0.041**	Significant
Length of Service	0.002**	Significant

Legend: ***Significant at 0.05 level of significance*

Table 5 above shows that among the variables identified in this study, the respondents' age, nature of the subjects handled, number of seminars attended, and length of service were found to be significantly related to their level of acceptance in using Google Classroom as a Learning Management System. The analysis reveals that those faculty members who are young, have been exposed to training on the use of technology in teaching, and have handled on subjects that need online discussion have a greater degree of acceptance for Google Classroom as a tool for online learning.

IV. RECOMMENDATIONS

The purpose of this study is determine the construct validity of the Technology Acceptance Model (TAM) in analyzing the factors that influence the acceptance of the use of technologies based on the user's perspective. Hence, based on the findings and conclusions drawn in this study, the following recommendations are offered:

1. Educational institutions should pay more attention on the development of its educational and ICT infrastructure most especially in this time of pandemic wherein web-based learning is the current trend in our educational landscape.
2. Instructors/faculty members of institutions of higher learning should undergo intensive trainings on how to use various learning platforms and/or learning management systems effectively and efficiently.
3. Policy makers should anchor their decisions on the findings of this study most especially on the procurement of various educational technologies and/or ICT infrastructures in their respective educational institutions.
4. Educational administrators should develop an understanding on how various factors or variables significantly influences their intention to use a particular learning management system.

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