

UTILIZING TAM FRAMEWORK IN STUDENTS' BEHAVIORAL INTENTION AND USE TOWARDS GOOGLE CLASSROOM FOR PHYSICAL EDUCATION

Sherina Dimo, West Visayas State University–Lambunao
Harly Israel Bandojo, Northern Iloilo State University
Kristia Estilo, West Visayas State University–Janiuay
Joeven Abalayan, Northern Iloilo State University–Lemery
Michael Achas, Northern Iloilo State University
Joseph Lobo, Bulacan State University

ABSTRACT

The present study intends to investigate the determinants influencing students' behavioral intention and use of Google Classroom as an instrument for enhancing the learning experience in the domain of physical education. This investigation employed the Technology Acceptance Model (TAM) as a conceptual framework. The results revealed that perceived ease of use positively predicts perceived usefulness of the learning management system (LMS). Moreover, perceived ease of use and perceived usefulness positively influences behavioral intention and actual use. Lastly, behavioral intention to use leverages actual use of the educational platform. The results indicate that Google Classroom is a viable and efficient technology for facilitating online learning.

Keywords: *educational technology, higher education, partial least square-structural equation modeling, physical education, Technology Acceptance Model*

INTRODUCTION

In light of the challenges encountered by educators and learners alike, it is noteworthy that online learning, remote education, and continuing education have emerged as a potential solution to mitigate the impact of the ongoing global pandemic (Stankovska et al., 2022). Amidst the outbreak of the highly contagious COVID-19 virus, particularly in the Philippines, several higher education institutions (HEIs) in this nation have implemented proactive measures to ensure the uninterrupted provision of education despite the enforced closures. These measures are aimed at addressing the academic demands of learners, particularly the 3.5 million students enrolled in approximately 2,400 higher education institutions (Joaquin et al., 2020; Lim et al., 2022). The inclusion of online education,

in its various modified formats, within these standards is justified by its capacity to enhance students' educational experiences. Due to the profound consequences of the virus, higher education institutions globally have been compelled to enact temporary closures of their physical campuses. However, these institutions are adapting by continuing to deliver educational services through e-learning platforms (Dhawan, 2020; Muhaimin et al., 2023). Following the global impact of the COVID-19 pandemic, a significant number of higher education establishments worldwide have transitioned to what is commonly known as the "new normal" in the field of education (Bashir et al., 2021; García-Morales et al., 2021). This instructional strategy has been widely adopted by different universities worldwide, enabling

students to enhance their knowledge without the need to physically attend classes outside their residences. E-learning has proven to be advantageous for educational institutions, providing significant support to HEIs in delivering high-quality educational experiences to students. This remains true even in the current context of the “new normal” (Lockee, 2021; Pokhrel & Chhetri, 2021). There is a consensus among scholars that e-learning offers a multitude of advantages, such as its adaptability, ease, and facilitation of student-teacher communication (Elshami et al., 2021; Gherheş et al., 2021).

Among the several educational platforms that have been implemented in numerous higher education institutions, Google Classroom remains a widely utilized learning management system (LMS) on a global scale. Google Classroom, an online learning management system and virtual classroom, was first introduced in 2014 by Google Apps for Education (GAPE). Its primary purpose is to enable teachers to create and organize educational materials and assignments in a more expedient manner. Additionally, it facilitates prompt feedback delivery and enhances communication between teachers and their respective classes (Shaharane et al., 2016). Moreover, this LMS offers an efficient communication infrastructure for educators and learners, facilitating centralized access to forums for discussion and assigned tasks. In addition to these elements, educators are able to promptly recognize students who are overwhelmed by their academic obligations or assignments through the monitoring systems associated with the given duties. Similarly, the utilization of a digital platform aids educators and learners in maintaining a systematic arrangement of their documents, as all academic materials are maintained electronically within a unified software (Graham & Borgen, 2018). According to Graham and Borgen (2018), Google Classroom is not only user-friendly but also built to optimize time efficiency. It operates on a cloud-based system, offering flexibility and accessibility, with the added advantage of being compatible with mobile devices. Google Classroom, as an LMS, has proven to be highly effective for both educators and learners. Previous research has shown substantial evidence to support the efficacy of Google Classroom as a teaching instrument (Kadwa & Alshenqeti, 2020; Olufunke, 2020). Numerous studies have been

undertaken globally across various disciplines to examine the efficacy of Google Classroom as a facilitative tool for teaching and learning.

In light of concerning observations, it is worth noting that while numerous studies have been conducted on the acceptability of Google Classroom among students in various continents, there is a dearth of documented research specifically focused on ASEAN countries, particularly in the Philippines, which is classified as a middle-income nation. Despite conducting a comprehensive review of pertinent academic literature, no research studies were identified that have been conducted within the Philippine environment, particularly focusing on the domain of physical education within the state university and college sector. In contrast to other fields or disciplines, there is a dearth of research articles conducted by Filipino researchers on the topic of the viability of Google Classroom in the domain of physical education. Therefore, it is essential to conduct a study of a comparable sort to address the lack of scientific evidence about the effectiveness of the Google Classroom as a platform for teaching and learning physical education. The main purpose of this study is to examine the factors that may impact students’ behavioral intention and use of Google Classroom as a viable tool for acquiring knowledge and skills in the field of physical education. This investigation will be conducted using the Technology Acceptance Model (TAM).

REVIEW OF RELATED LITERATURE

Amidst the ongoing pandemic, a significant amount of scientific study has been undertaken to investigate the efficacy of e-learning, online or blended learning. However, there remains a scarcity of scholarly articles specifically examining the effectiveness of Google Classroom as an LMS, particularly in the context of physical education within state universities and colleges in the Philippines. The body of research on Google Classroom is extensive and well-documented, with several studies conducted by educational institutions and researchers from various countries. These investigations have been conducted both before the onset of the pandemic and continue to be carried out in the current context of the “new normal” (Al-Marroof & Al-Emran, 2018; Al-Marroof et al., 2021; Han & Sa, 2021; Huang et al., 2021). Furthermore, there has

been a significant proliferation of recent research studies investigating the application of the Unified Theory of Acceptance and Use of Technology (UTAUT) and the Extended Theory of Acceptance and Use of Technology (UTAUT2). These studies have yielded valuable insights for numerous HEIs regarding the determinants influencing the adoption and utilization of Google Classroom across diverse academic disciplines on a global level (Alotumi, 2022; Delos Reyes et al., 2022; Kumar & Bervell, 2019). In addition to the components outlined in these models, there has been additional research that has incorporated additional crucial factors that are capable of predicting students' utilization of a system (Bervell et al., 2021; Mahamud et al., 2021; Oluyinka & Cusipag, 2021). As previously indicated, the aforementioned studies have assisted other HEIs in addressing the demands and preferences of students in order to enhance the caliber of instruction and educational experiences.

As previously said, e-learning (or online learning) will continue to have a substantial impact on HEIs, serving as an aid for educators and students to enhance the process of teaching and learning. The utilization of Google Classroom remains relevant in the current context of education, as there are still several HEIs globally that continue to operate solely through online platforms. This is also the case in the present inquiry. This specific LMS remains applicable and accessible to educators in diverse fields. According to the research conducted by Widiyatmoko (2021), it was shown that Google Classroom demonstrates efficacy in facilitating online learning for science courses. Nevertheless, the successful application of the aforementioned system necessitates the careful consideration of various factors, including but not limited to the involvement of students and teachers, the availability of digital educational resources, and the accessibility of online connectivity. Additionally, a research investigation carried out at Kebbie State University of Science and Technology Aliero (KSUSTA) unveiled that the utilization of Google Classroom yields a significant enhancement in students' accessibility and focus towards the acquisition of information, abilities, and learning outcomes. This, in turn, fosters an environment where students actively engage in the learning process (Rani & Beutlin, 2020). However, the inadequate quality of connections poses a significant obstacle for students in properly utilizing the LMS,

thus leading to delayed submission of assignments. In a similar vein, the research conducted by Alim et al. (2019) demonstrated that Google Classroom serves as a proficient instructional platform for diverse Islamic institutes in Indonesia. Nevertheless, certain constraints were identified, including the requirement of possessing a smartphone and the limited accessibility of Wi-Fi and data subscription plans for discussions in virtual classes. Several challenges threaten the successful implementation of online education through the utilization of Google Classroom. These challenges have been extensively studied and are of significant concern to educational institutions that are committed to delivering high-quality education to students (Ashraf et al., 2021; Clarin & Baluyos, 2022; Santos, 2021). Despite the numerous challenges and obstacles faced by students, it can be inferred from prior research conducted during the pandemic and in the current educational landscape that Google Classroom has proven to be an efficacious system for supporting the entire educational process (Fauzi et al., 2021; Taja-on et al., 2021; Zuniga-Tonio, 2021).

However, it is important to note that educational institutions worldwide continue to encounter various difficulties, particularly in the implementation of online physical education classes. According to the findings of Jeong and So (2020), it was observed that the repetitive nature of lessons, combined with the constrained ambient circumstances and educational material, failed to effectively communicate the significance of physical education. According to Jeong and So (2020), the utilization of trial-and-error approaches can be attributed to a dearth of proficiency in conducting physical education classes and a scarcity of comprehensive evaluation criteria, hence rendering the systematic assessment of online methods unfeasible. Educators have also expressed challenges in fostering student motivation due to the absence of visual stimuli. According to Moustakas & Robrade (2022)—despite the presence of innovation, diversity, and engagement—the practical and social aspects of sport and physical education are not completely transferable to an online environment. Despite the numerous benefits of convenience and security associated with online learning, there is a limited opportunity to transfer skills and knowledge to learners (Tegero, 2021). Moreover, the study conducted by Chan et al. (2021) found that physical

education sessions did not yield significant improvements in motor skill acquisition and physical activity levels, irrespective of the learning management system employed. Significant factors contributing to this phenomenon was the inadequate provision of practical training, students' diminished learning motivation and interest, and restricted opportunities for interpersonal connections. The aforementioned studies have yielded significant insights into the difficulties associated with delivering high-quality education in physical education subjects through online learning, owing to the unique characteristics of the discipline. On the brighter side, there are still examples of success during the worldwide outbreak and in the global implementation of physical education that have been documented. According to the study conducted by Idris et al. (2021), it was discovered that the inclusion of physical education in an online environment has advantageous results, such as fostering independence and facilitating adjustment to the prevailing circumstances. According to Webster et al. (2021), students enrolled in online health and physical education courses exhibited a more positive impression of their learning experiences. This included factors such as the input and availability of their lecturers, their grasp of the course content, and their perceived improvements in health. In general, it can be inferred that the resolution of these difficulties encountered by educators and learners across diverse educational establishments should yield significant educational encounters for students in their physical education courses, irrespective of the chosen learning management system, particularly in the context of the current paradigm shift.

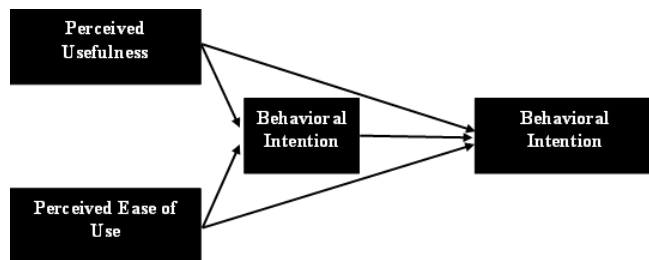
The existing body of research and literature indicates a scarcity of studies examining students' attitudes towards the utilization of Google Classroom as an instructional tool in the domain of physical education, particularly within the context of higher education institutions in the Philippines. Therefore, an empirical investigation is necessary. The primary objective of this study is to investigate the various elements that influence students' behavioral intention and use of Google Classroom. Furthermore, this interdisciplinary inquiry seeks to contribute significant insights to the current body of literature by addressing the research gap pertaining to the acquisition of concepts and skills in the context of physical education utilizing the platform of Google Classroom.

THE TECHNOLOGY ACCEPTANCE MODEL

Numerous studies have been conducted on the subject of individuals' adoption of new technology, with a particular emphasis on information systems (IS) and intention-based theories and models (Granić, 2022). The Technology Acceptance Model developed (Davis, 1989) is widely recognized as a very influential and well-known concept. There are two main aspects that have an impact on an individual's intention to adopt a new technology: perceived ease of use (PEOU) and perceived usefulness (PU) (Kelly & Palaniappan, 2023). Perceived ease of use refers to the extent to which a person believes that using a specific system would be simple (Kampa, 2023), whereas PU refers to a system's productivity, effectiveness, and overall advantages in terms of enhancing users' performance (Ebadi & Raygan, 2023). The utilization of this model exhibits extensive prevalence throughout diverse educational disciplines (Castiblanco Jimenez et al., 2020; Zhou et al., 2022), industries (Peng & Yan, 2022; Portz et al., 2019), and even in conjunction with the TAM alongside other external elements (He et al., 2018). Furthermore, the utilization of the TAM to evaluate students' acceptance of learning platforms, such as Google Classroom, has been effective in confirming and establishing PEOU and PU as significant external factors that impact their behavioral intention and actual usage of the system (Fauzi et al., 2021; Laurencia & Sudarto, 2021; Mahamud et al., 2021). Over the course of time, TAM has consistently demonstrated its efficacy in evaluating the adoption of novel technologies. The model posits that the acceptance choice of learners when introduced to new technology is significantly influenced by the external aspects of PEOU and PU. This study conducted an ongoing investigation that utilized the TAM. The objective is to examine the factors influencing students' behavioral intention and use of Google Classroom as a learning platform in the context of their physical education classes in which the conceptual framework is illustrated in Figure 1. Lastly, this study is focused on testing the following proposed hypotheses:

- H₁: PEOU positively influences the PU
- H₂: PEOU positively influences BI
- H₃: PU positively influences BI
- H₄: PEOU positively influences AU
- H₅: PU positively influences AU
- H₆: BI positively influences AU

Figure 1.
Conceptual Framework Based on the Technology Acceptance Model



METHOD

Participants

The selected participants for this study consist of students who are presently enrolled in several minor physical education courses at a state university located in region 6 in the Philippines. These students are currently enrolled in the second semester of the academic year 2021–2022. The data were gathered during the second semester to enable the inclusion of first-year students, who had the opportunity to engage in online learning and utilize Google Classroom in their respective courses. The Purposive Sampling Technique has been utilized to identify the respondents. It is a non-parametric procedure in which the investigators identify the respondents based on their qualities that are highly suitable for the present study (Campbell et al., 2020). There are 1,066 students who voluntarily participated in the study, and 100% of the responses are accepted after data cleaning. In order to gather the most reliable and accurate data from the respondents, a selection criterion was formulated:

1. Must be in their first or second year enrolled in minor physical education courses
2. Either male or female

Table 1 illustrates the demographic profile of the respondents with respect to gender. Most of the participants are female compared to male [NFEMALE = 665(37.6%), NMALE = 401 (62.4%)].

Table 1.
Demographic Characteristics

Variable	Items	N(%)
Sex	Male	401(37.6%)
	Female	665(62.4%)

Instrument

The data-gathering process was conducted via an online survey administered through Google Forms. The utilization of online data collecting methods enables the acquisition of substantial quantities of data at a low cost, hence potentially resulting in significant time savings (Li et al., 2021). The online survey is separated into two sections. The initial section of the questionnaire is dedicated to gathering demographic information from the respondents. The subsequent section is designed to collect relevant data using the TAM framework. The questionnaire utilized in this study was derived from the original research conducted by Davis (1989). It assesses four independent dimensions, namely PU, PEOU, behavioral intention (BI), and actual usage (AU). In order to align the questionnaire with the specific focus of the study, certain modifications have been made, including the inclusion of the term “physical education.” The acquired data has been encoded using a 7-point Likert Scale, ranging from 1 (indicating “Extremely disagree”) to 7 (indicating “Extremely agree”).

DATA ANALYSIS

Normality and Reliability Test and Bivariate Correlation

A normality and reliability test and bivariate correlation analysis was performed before executing factor analysis. Based on the findings, most of the scales were able to attain the threshold value [2, -2] suggesting that the data are normally

Table 2.
Normality and Reliability Test and Bivariate Correlation Analysis

	Mean ± SD	Skew	Kurt	1	2	3	4
PU	4.65 ± 1.09	-.684	.965	(.74)			
PEOU	5.69 ± 1.43	-1.629	2.272	.67**	(.95)		
BI	5.43 ± 1.42	-1.003	.576	.64**	.83**	(.93)	
AU	5.45 ± 1.42	-1.040	.786	.57**	.77**	.76**	(.85)

* Statistically significant at $p < .05$.

** Statistically significant at $p < .01$.

distributed: PU (M = 4.65, SD = 1.09; Skew = -.684, Kurt = .965), PEOU (M = 5.69, SD = 1.43; Skew = -1.629, Kurt = 2.272), BI (M = 5.43, SD = 1.42; Skew = -1.003, Kurt = .576), and AU (M = 5.45, SD = 1.42; Skew = -1.040, Kurt = .786). Furthermore, most of the scales were found to be highly reliable with Cronbach's Alpha (α) values ranging .74 to .95. Lastly, the bivariate correlation analysis' results indicated that all subscales are interrelated ($p < .05$).

FACTOR ANALYSIS, CONVERGENT, AND DISCRIMINANT VALIDITY

To measure the reliability of items for each subscale, a factor loading analysis was performed. In order for an item to be retained in the model, a threshold value of >0.70 should be obtained (Hair et al., 2021). After the extraction of items <0.70 , all retained items are considered reliable. Also, the Cronbach's Alpha (α) and composite reliability (CR) value threshold should be >0.70 . Additionally, the average variance extracted (AVE) has been used to validate construct and the standard measure for convergent validity, in which the AVE should be >0.50 , and the corresponding p-value should be $>.50$. Based on the results in Table 3, the CA (α), CR, and AVE met the corresponding threshold values across all subscales: PU [CA (α): 0.938; CR: 0.938; AVE: 0.843], PEOU [CA (α): 0.948; CR: 0.950; AVE: 0.796], BI [CA (α): 0.931; CR: 0.932; AVE: 0.880], and AU [CA (α): 0.848; CR: 0.856; AVE: 0.868]. Thus, convergent validity has been established. Meanwhile, Fornell-Larcker criterion, cross-loadings, and heterotrait-monotrait ratio (HTMT) were utilized to establish discriminant validity. First, the Fornell-Larcker criterion requires that the square root of AVE (diagonal value) in each construct should exceed the correlation of latent constructs, which is illustrated in Table 4. Second, cross-loading results require that the loading of each indicator should be greater than the loadings of its corresponding constructs' indicators, which is supplied in Table 5. Lastly, heterotrait-monotrait necessitates that the value should be <0.90 , which is exemplified in Table 6. Ergo, discriminant validity has been established.

Table 3.
Measurement Model Results

Constructs	Items	Loadings	α	CR	AVE
Perceived Usefulness	PU2	0.917	0.938	0.938	0.843
	PU3	0.926			
	PU4	0.931			
Perceived Ease of Use	PU5	0.899	0.948	0.950	0.796
	PE1	0.920			
	PE2	0.903			
	PE3	0.917			
	PE4	0.925			
	PE5	0.836			
Behavioral Intention to Use	PE6	0.846	0.931	0.932	0.880
	BI1	0.961			
	BI2	0.964			
Actual Use	BI3	0.888	0.848	0.856	0.868
	AU1	0.940			
	AU2	0.923			

Table 4.
Fornell-Larcker Criterion

	AU	BI	PEOU	PU
AU	0.931			
BI	0.763	0.938		
PEOU	0.771	0.829	0.892	
PU	0.660	0.735	0.780	0.918

Table 5.
Cross-Loadings Results

	AU	BI	PEOU	PU
AU1	0.940	0.751	0.754	0.654
AU2	0.923	0.666	0.678	0.572
BI1	0.716	0.961	0.806	0.693
BI2	0.720	0.964	0.800	0.692
BI3	0.711	0.888	0.726	0.684
PE1	0.711	0.756	0.920	0.723
PE2	0.687	0.752	0.903	0.694
PE3	0.709	0.773	0.917	0.707
PE4	0.717	0.755	0.925	0.729
PE5	0.621	0.653	0.836	0.608
PE6	0.675	0.741	0.846	0.707
PU2	0.590	0.675	0.685	0.917
PU3	0.602	0.672	0.743	0.926
PU4	0.605	0.684	0.686	0.931
PU5	0.626	0.671	0.749	0.899

Table 6.
Heterotrait-Monotrait Ratio (HTMT)

	AU	BI	PEOU	PU
AU				
BI	0.857			
PEOU	0.857	0.881		
PU	0.737	0.787	0.825	

Ethical Considerations

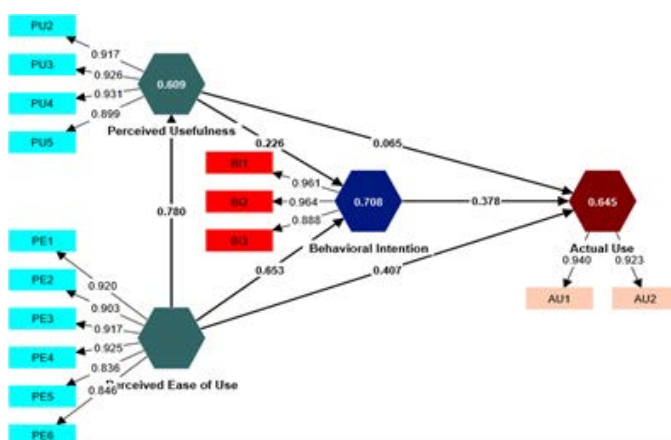
All respondents were aware of the study's aims, measurement tools, and constructs. The favorable impacts that this study will have on state universities in the Philippines and the scientific community have also been detailed. There was also some discussion of the potential for less serious hazards, such as experiencing discomfort when answering personal and sensitive survey questions and not being financially compensated for the information submitted. Due to these factors, Google Forms included a checkbox for responses to express their agreement with the linked agreement.

RESULTS

Structural Model Assessment

The explanatory 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 R2 and the path coefficients are the essential measures for assessing the structural model. As seen in Figure 2, the model has R2 value of PU is 60.9%, BI 70.8%, and AU 64.5%, respectively.

Figure 2.
Path Analysis Results



As suggested by academic scholars, the model has been bootstrapped into 10,000 subsamples for path analysis (Fauzi, 2022; Hair et al., 2021; Streukens & Leroi-Werelds, 2016). Each hypothesis' path coefficient and p-values are illustrated (See table 7 and Figure 2). Based on the results, PEOU is positively associated and influences PU ($\beta = 0.609$, $p < .05$) of Google Meet as a tool in learning concepts in PE, which supported H1. It was also observed that PEOU ($\beta = 0.653$, $p < .05$) and PU ($\beta = 0.226$, $p < .05$) are directly significantly interrelated and influences BI to use Google Meet as a tool in learning PE concepts, indicating that H2 and H3 were supported. Also, PEOU ($\beta = 0.407$, $p < .05$) and PU ($\beta = 0.065$, $p = .036$) were observed to have a positive correlation and affects AU of the educational platform in PE suggesting that H4 and H5 were supported. Lastly, it was found that BI is significantly linked and leverages AU of the platform ($\beta = 0.378$, $p < .05$), indicating that H6 has been supported.

Table 7.
Path-Coefficient and Hypotheses Results

Hypotheses	Path	Path Coefficient	p-Value	Decision
H ₁	PEOU → PU	0.609	0.000	Supported
H ₂	PEOU → BI	0.653	0.000	Supported
H ₃	PU → BI	0.226	0.000	Supported
H ₄	PEOU → AU	0.407	0.000	Supported
H ₅	PU → AU	0.065	0.036	Supported
H ₆	BI → AU	0.378	0.000	Supported

DISCUSSION

The results of the partial least square-structural equation modeling indicate that both perceived usefulness and perceived ease of use significantly impact the behavioral intention and actual use of Google Classroom as a learning platform for acquiring knowledge in physical education. Furthermore, the results indicate that the platform necessitates less exertion and exhibits a user-friendly interface, an observation that has been substantiated by other scholars (Das, 2023; Farah et al., 2021; Kassim, 2021). Furthermore, the results suggest that students regard Google Classroom as a tool that has the potential to enhance their academic performance as a result

of its ease of access and practicality. The study conducted by Zuniga-Tonio (2021) has demonstrated that Google Classroom has the potential to offer students convenience, value, and satisfaction. Furthermore, according to the research conducted by Hadijah (2023), it was discovered that the utilization of the Google Classroom application holds potential for enhancing writing skills due to its practicality in comparison to conventional instructional approaches. According to the cited literature, Google Classroom has been shown to be applicable in physical education classes since students believe it to be both feasible and pragmatic. Similarly, it may be postulated that the integration of Google Classroom into online courses may lead to increased levels of student motivation. These particular findings have been supported by recent published papers concerning Google Classroom's influence on motivating students to engage to online classes (Ong & Quek, 2023), which may also be applicable to physical education courses. In fact, Google Classroom was found to be a highly successful educational tool for students, making it possible to meet the demands of a wide range of students as they learned different physical education concepts. This result is consistent with findings from research in a wide range of academic fields and settings that have examined the efficacy of this same educational platform (Al-Marouf & Al-Emran, 2018; Fauzi et al., 2021; Khairani et al., 2020). On one hand, the results of this present investigation may be open for criticism. Students' engagement and performance may only be measured if the study will be conducted in an approach such as experimental analysis in which their outputs may be used as the basis. This will be beneficial to fully support the findings of this study based on the results concerning the motivation, engagement, and performance of students in using Google Classroom as an educational platform in various physical education courses.

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. Students' BI and AU were shown to be affected by a number of other variables as well, including those predicted by the Unified Theory of Acceptance and Use of Technology, such as behavior intention, social expectancy, and performance expectancy (Mokhtar & Abu Karim, 2021). Similar

to the UTAUT, the UTAUT2 suggests that students' BI and AU of the platform may be influenced by facilitating conditions, hedonic motivations, and event habits (Alotumi, 2022; Venkatesh et al., 2016). Ergo, this limits the scope of the research to the variables already established by the TAM.

CONCLUSION

Using the PEOU and PU as predictors in a PLS-SEM analysis, this study found that students' BI and AU toward embracing Google Classroom as an instructional instrument for conceptual understanding and gaining abilities in physical education are strongly influenced by PEOU and PU. The success of this platform relies heavily on the user's familiarity with its operation and the ease with which it can be used. The students' potential reliance on Google Classroom as a learning tool, where they may swiftly advance their knowledge and skills while leveraging the university's educational system, is another surprising conclusion. The findings may be useful for the faculty, the academic council, and even the management of the university. This result is derived from the study's assessment of the university's heavy reliance on this technology. Offering students a variety of training chances to learn about the many benefits of Google Classroom is recommended for its effective implementation in the classroom.

Most significantly, it is crucial to recognize the study's limitations. The study's limitations are discussed, including its overreliance on the TAM and its exclusion of other potential contributing factors. The possibility that students' behavioral intentions and platform usage can be influenced by extraneous influences was also highlighted in the discussion. Further research utilizing an adopted/adapted version of UTAUT, UTAUT2, or similar behavior-intended paradigm or theory is strongly recommended in light of the study's findings. This would allow researchers to identify additional elements that may affect students' intention behavior and their actual use of Google Classroom. For this reason, qualitative or mixed-method research is recommended, as it will yield more in-depth and substantial insights into the numerous components that may influence students' acceptance of the aforementioned instructional tool.

Furthermore, the data obtained and evaluated for this study are limited to students from a

public institution in the Philippines, which may not be representative of all HEIs in the country. Therefore, further research is needed to confirm or disprove the findings of this study by gathering data from various universities across the country. Further, the faculty members' perspectives on the educational platform's use and efficacy in light of the aforementioned model or other developed theories may pique the interest of future scholars. Since there is a dearth of research carried out within the present setting investigation, this study makes a significant contribution to the body of scholarship and the existing writings by investigating and identifying the variables that influence students' willingness to utilize Google Classroom in a state university environment. This study provided evidence that the results thereof will back up and bridge the gap involving studies on students' acceptance and the efficacy of Google Classroom as an instructional tool in delivering high-quality instruction in physical education.

References

- Al-Marouf, R. A. S., & Al-Emran, M. (2018). Students acceptance of Google Classroom: An exploratory study using PLS-SEM approach. *International Journal of Emerging Technologies in Learning*, 13(6), 112. <https://doi.org/10.3991/ijet.v13i06.8275>
- Al-Marouf, R. S., Alshurideh, M. T., Salloum, S. A., AlHamad, A. Q. M., & Gaber, T. (2021). Acceptance of Google Meet during the spread of Coronavirus by Arab university students. *Informatics*, 8(2), 24. <https://doi.org/10.3390/informatics8020024>
- Alim, N., Linda, W., Gunawan, F., & Md Saad, M. S. (2019). The effectiveness of Google Classroom as an instructional media: A case of State Islamic Institute of Kendari, Indonesia. *Humanities & Social Sciences Reviews*, 7(2), 240–246. <https://doi.org/10.18510/hssr.2019.7227>
- Alotumi, M. (2022). Factors influencing graduate students' behavioral intention to use Google Classroom: Case study-mixed methods research. *Education and Information Technologies*, 27(7), 10035–10063. <https://doi.org/10.1007/s10639-022-11051-2>
- Ashraf, M., Ashraf, S., Ahmed, S., & Ullah, A. (2021). Challenges of online learning during the COVID-19 pandemic encountered by students in Pakistan. *Journal of Pedagogical Sociology and Psychology*, 3(1), 36–44. <https://doi.org/10.33902/JPSP.2021167264>
- Bashir, A., Bashir, S., Rana, K., Lambert, P., & Vernallis, A. (2021). Post-COVID-19 adaptations: The shifts towards online learning, hybrid course delivery and the implications for biosciences courses in the higher education setting. *Frontiers in Education*, 6. <https://doi.org/10.3389/educ.2021.711619>
- Bervell, B., Kumar, J. A., Arkorful, V., Agyapong, E. M., & Osman, S. (2021). Remodelling the role of facilitating conditions for Google Classroom acceptance: A revision of UTAUT2. *Australasian Journal of Educational Technology*, 38(1), 115–135. <https://doi.org/10.14742/ajet.7178>
- Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., & Walker, K. (2020). Purposive sampling: Complex or simple? Research case examples. *Journal of Research in Nursing*, 25(8), 652–661. <https://doi.org/10.1177/1744987120927206>
- Castiblanco Jimenez, I. A., Cepeda Garcia, L. C., Violante, M. G., Marcolin, F., & Vezzetti, E. (2020). Commonly used external TAM variables in e-learning, agriculture, and virtual reality applications. *Future Internet*, 13(1), 7. <https://doi.org/10.3390/fi13010007>
- Chan, W. K., Leung, K. I., Hoc, C., Wuc, W., Lam, K. Y., Wong, N. L., Chan, C. Y. R., Leung, K. M., & Tse, A. C. Y. (2021). Effectiveness of online teaching in physical education during COVID-19 school closures: A survey study of frontline physical education teachers in Hong Kong. *Journal of Physical Education and Sport*, 21(4), 1622–1628. <https://doi.org/10.7752/jpes.2021.04205>
- Clarín, A. S., & Baluyos, E. L. (2022). Challenges encountered in the implementation of online distance learning. *EduLine: Journal of Education and Learning Innovation*, 2(1), 33–46. <https://doi.org/10.35877/454RI.eduline591>
- Das, R. L. (2023). Students' adoption of Google Classroom investigated by Technology Acceptance Model. *MIER Journal of Educational Studies Trends and Practices*, 98–113. <https://doi.org/10.52634/mier/2023/v13/i1/2337>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319. <https://doi.org/10.2307/249008>
- Delos Reyes, E. G., Galura, J. C., & Pineda, J. L. S. (2022). C5-LMS design using Google Classroom: user acceptance based on extended Unified Theory of Acceptance and Use of Technology. *Interactive Learning Environments*, 1–10. <https://doi.org/10.1080/10494820.2022.2028852>
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, 49(1), 5–22. <https://doi.org/10.1177/0047239520934018>
- Ebadi, S., & Raygan, A. (2023). Investigating the facilitating conditions, perceived ease of use and usefulness of mobile-assisted language learning. *Smart Learning Environments*, 10(1), 30. <https://doi.org/10.1186/s40561-023-00250-0>
- Elshami, W., Taha, M. H., Abuzaid, M., Saravanan, C., Al Kawas, S., & Abdalla, M. E. (2021). Satisfaction with online learning in the new normal: Perspective of students and faculty at medical and health sciences colleges. *Medical Education Online*, 26(1). <https://doi.org/10.1080/10872981.2021.1920090>
- Farah, Z., Mohamad, F., Napitupulu, D., Nazuar, S., & Roza, L. (2021). Analyzing Indonesian students' Google Classroom acceptance during COVID-19 outbreak: Applying an Extended Unified Theory of Acceptance and Use of Technology Model. *European Journal of Educational Research*, 10(4), 1697–1710. <https://doi.org/10.12973/eu-jer.10.4.1697>
- Fauzi, A., Wandira, R., Sepri, D., & Hafid, A. (2021). Exploring students' acceptance of Google Classroom during the COVID-19 pandemic by using the Technology Acceptance Model in West Sumatera universities. *Electronic Journal of E-Learning*, 19(4), 233–240. <https://doi.org/10.34190/ejel.19.4.2348>
- Fauzi, M. A. (2022). Partial least square structural equation modelling (PLS-SEM) in knowledge management studies: Knowledge sharing in virtual communities. *Knowledge Management & E-Learning: An International Journal*, 14(1),

- 103–124. <https://doi.org/10.34105/j.kmel.2022.14.007>
- García-Morales, V. J., Garrido-Moreno, A., & Martín-Rojas, R. (2021). The transformation of higher education after the COVID disruption: Emerging challenges in an online learning scenario. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.616059>
- Gherheș, V., Stoian, C. E., Fărcașiu, M. A., & Stanici, M. (2021). E-learning vs. face-to-face learning: Analyzing students' preferences and behaviors. *Sustainability*, 13(8), 4381. <https://doi.org/10.3390/su13084381>
- Graham, M. J., & Borgen, J. (2018). Google Classroom. *Google Tools Meets Middle School* (Vol. 3), 23–36. Corwin. <https://doi.org/10.4135/9781506360188.n3>
- Granić, A. (2022). Educational technology adoption: A systematic review. *Education and Information Technologies*, 27(7), 9725–9744. <https://doi.org/10.1007/s10639-022-10951-7>
- Hadijah, H. (2023). Students' perspective of using Google Classroom as the learning management system for students' writing skill. *Wiralodra English Journal*, 7(1), 65–75. <https://doi.org/10.31943/wej.v7i1.198>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial least-squares structural equation modeling (PLS-SEM) using R*. Sage. Springer International Publishing. <https://doi.org/10.1007/978-3-030-80519-7>
- Han, J. -H., & Sa, H. J. (2021). Acceptance of and satisfaction with online educational classes through the technology acceptance model (TAM): The COVID-19 situation in Korea. *Asia Pacific Education Review*, 0123456789. <https://doi.org/10.1007/s12564-021-09716-7>
- He, Y., Chen, Q., & Kitkuakul, S. (2018). Regulatory focus and technology acceptance: Perceived ease of use and usefulness as efficacy. *Cogent Business & Management*, 5(1), 1459006. <https://doi.org/10.1080/23311975.2018.1459006>
- Huang, T. -H., Liu, F., Chen, L. -C., & Tsai, C. -C. (2021). The acceptance and impact of Google Classroom integrating into a clinical pathology course for nursing students: A technology acceptance model approach. *PLOS ONE*, 16(3), e0247819. <https://doi.org/10.1371/journal.pone.0247819>
- Idris, F., Zulklipli, I. N., Abdul-Mumin, K. H., Ahmad, S. R., Mitha, S., Rahman, H. A., Rajabalaya, R., David, S. R., & Naing, L. (2021). Academic experiences, physical, and mental health impact of COVID-19 pandemic on students and lecturers in health care education. *BMC Medical Education*, 21(1), 542. <https://doi.org/10.1186/s12909-021-02968-2>
- Jeong, H. -C., & So, W. -Y. (2020). Difficulties of online physical education classes in middle and high school and an efficient operation plan to address them. *International Journal of Environmental Research and Public Health*, 17(19), 7279. <https://doi.org/10.3390/ijerph17197279>
- Joaquin, J. J. B., Biana, H. T., & Dacela, M. A. (2020). The Philippine higher education sector in the time of COVID-19. *Frontiers in Education*, 5. <https://doi.org/10.3389/educ.2020.576371>
- Kadwa, M. S., & Alshenqeeti, H. (2020). The impact of students' proficiency in English on science courses in a foundation year program. *International Journal of Linguistics, Literature, and Translation (IJLLT)*, 3(11), 55–67. <https://doi.org/10.32996/ijllt>
- Kampa, R. K. (2023). Combining technology readiness and acceptance model for investigating the acceptance of m-learning in higher education in India. *Asian Association of Open Universities Journal*. <https://doi.org/10.1108/AAOUJ-10-2022-0149>
- Kassim, W. Z. W. (2021). Google Classroom: Malaysian university students' attitudes towards its use as learning management system. *Proceedings of the First International Conference on Science, Technology, Engineering, and Industrial Revolution (ICSTEIR 2020)*, 438–446, 536. <https://doi.org/10.2991/assehr.k.210312.072>
- Kelly, A. E., & Palaniappan, S. (2023). Using a technology acceptance model to determine factors influencing continued usage of mobile money service transactions in Ghana. *Journal of Innovation and Entrepreneurship*, 12(1), 34. <https://doi.org/10.1186/s13731-023-00301-3>
- Khairani, A., Daud, A., & Adnan, M. (2020). Students' acceptance of the use of Google Classroom as a platform in blended learning. *AL-ISHLAH: Jurnal Pendidikan*, 12(1), 1–16. <https://doi.org/10.35445/alishlah.v12i1.193>
- Kumar, J. A., & Bervell, B. (2019). Google Classroom for mobile learning in higher education: Modeling the initial perceptions of students. *Education and Information Technologies*, 24(2), 1793–1817. <https://doi.org/10.1007/S10639-018-09858-Z/TABLES/9>
- Laurencia, K., & Sudarto, S. (2021). Intention to use Microsoft Teams in the online learning system for students of Universitas Tarumanagara during the COVID-19 pandemic. In *Proceedings of the International Conference on Economics, Business, Social, and Humanities (ICEBSH 2021)*, 570, 748–754. <https://doi.org/10.2991/assehr.k.210805.118>
- Li, B., Shamsuddin, A., & Braga, L. H. (2021). A guide to evaluating survey research methodology in pediatric urology. *Journal of Pediatric Urology*, 17(2), 263–268. <https://doi.org/10.1016/j.jpuro.2021.01.009>
- Lim, L. T. S., Regencia, Z. J. G., Dela Cruz, J. R. C., Ho, F. D. V., Rodolfo, M. S., Ly-Uson, J., & Baja, E. S. (2022). Assessing the effect of the COVID-19 pandemic, shift to online learning, and social media use on the mental health of college students in the Philippines: A mixed-method study protocol.

- PLOS ONE, 17(5), e0267555. <https://doi.org/10.1371/journal.pone.0267555>
- Lockee, B. B. (2021). Online education in the post-COVID era. *Nature Electronics*, 4(1), 5–6. <https://doi.org/10.1038/s41928-020-00534-0>
- Mahamud, S., Fam, S. -F., Saleh, H., Kamarudin, M. F., & Wahjono, S. I. (2021). Predicting Google Classroom acceptance and use in STEM education: Extended UTAUT2 approach. In 2021 2nd SEA-STEM International Conference (SEA-STEM), 155–159. <https://doi.org/10.1109/SEA-STEM53614.2021.9668096>
- Mokhtar, R., & Abu Karim, M. H. (2021). Exploring students' behavior in using Google Classroom during COVID-19 pandemic: Unified Theory of Acceptance and Use of Technology (UTAUT). *International Journal of Modern Education*, 3(8), 182–195. <https://doi.org/10.35631/IJMOE.380015>
- Moustakas, L., & Robrade, D. (2022). The challenges and realities of e-learning during COVID-19: The case of university sport and physical education. *Challenges*, 13(1), 9. <https://doi.org/10.3390/challe13010009>
- Muhaimin, M., Habibi, A., Riady, Y., Alqahtani, T. M., Chaerunisaa, A. Y., Wijaya, T. T., Milanda, T., Yusop, F. D., & Albelbisi, N. A. (2023). COVID-19 distance and online learning: A systematic literature review in pharmacy education. *BMC Medical Education*, 23(1), 367. <https://doi.org/10.1186/s12909-023-04346-6>
- Olufunke, O. (2020). Facilitating efficient teaching and learning through a technology-based Google Classroom as a social tool in Nigerian Tertiary institutions. *International Journal of Innovative Science and Research Technology*, 5(5), 1461–1464. <https://ijisrt.com/assets/upload/files/IJISRT20MAY818.pdf>
- Oluyinka, S., & Cusipag, M. (2021). Trialability and purposefulness: Their role towards Google Classroom acceptance following educational policy. *Acta Informatica Pragensia*, 10(2), 172–191. <https://doi.org/10.18267/j.aip.154>
- Ong, S. G. T., & Quek, G. C. L. (2023). Enhancing teacher–student interactions and student online engagement in an online learning environment. *Learning Environments Research*. <https://doi.org/10.1007/s10984-022-09447-5>
- Peng, M. Y. -P., & Yan, X. (2022). Exploring the influence of determinants on behavior intention to use of multiple media kiosks through technology readiness and acceptance model. *Frontiers in Psychology*, 13. <https://doi.org/10.3389/fpsyg.2022.852394>
- Pokhrel, S., & Chhetri, R. (2021). A literature review on impact of COVID-19 pandemic on teaching and learning. *Higher Education for the Future*, 8(1), 133–141. <https://doi.org/10.1177/2347631120983481>
- Portz, J. D., Bayliss, E. A., Bull, S., Boxer, R. S., Bekelman, D. B., Gleason, K., & Czaja, S. (2019). Using the Technology Acceptance Model to explore user experience, intent to use, and use behavior of a patient portal among older adults with multiple chronic conditions: Descriptive qualitative study. *Journal of Medical Internet Research*, 21(4), e11604. <https://doi.org/10.2196/11604>
- Rani, T. J., & Beutlin, M. R. (2020). Effectiveness of Google Classroom as a tool for teaching and learning. *International Journal of Evidence Based Nursing*, 3(2). <https://doi.org/10.37628/ijebn.v3i2.1606>
- Santos, J. M. (2021). Google Classroom: Beyond the traditional setting. *Problems of Education in the 21st Century*, 79(4), 626–639. <https://doi.org/10.33225/pec/21.79.626>
- Shaharane, I. N. M., Jamil, J. M., & Rodzi, S. S. M. (2016). The application of Google Classroom as a tool for teaching and learning. *Journal of Telecommunication, Electronic, and Computer Engineering*, 8(10), 5–8. <https://core.ac.uk/download/pdf/78487287.pdf>
- Stankovska, G., Memedi, I., & Grncarovska, S. P. (2022). Impact of COVID-19 on higher education: challenges and opportunities. *Bulgarian Comparative Education Society*, 20, 181–188. <https://eric.ed.gov/?id=ED622717>
- Streukens, S., & Leroi-Werelds, S. (2016). Bootstrapping and PLS-SEM: A step-by-step guide to get more out of your bootstrap results. *European Management Journal*, 34(6), 618–632. <https://doi.org/10.1016/j.emj.2016.06.003>
- Taja-on, E., Miras, R., & Jurolan, C. (2021). E-learning: Teaching effectiveness to conventional teaching in undergraduates amid COVID-19 pandemic. *OALib*, 8(11), 1–10. <https://doi.org/10.4236/oalib.1108124>
- Tegero, M. C. (2021). Challenges encountered by physical education teachers in online teaching in times of COVID-19 pandemic. *International Journal of Research Publications*, 91(1), 1–5. <https://doi.org/10.47119/IJRP1009111220212595>
- Venkatesh, V., Thong, J., & Xu, X. (2016). Unified Theory of Acceptance and Use of Technology: A synthesis and the road ahead. *Journal of the Association for Information Systems*, 17(5), 328–376. <https://doi.org/10.17705/1jais.00428>
- Webster, C. A., D'Agostino, E., Urtel, M., McMullen, J., Culp, B., Egan Loiacono, C. A., & Killian, C. (2021). Physical education in the COVID Era: Considerations for online program delivery using the comprehensive school physical activity program framework. *Journal of Teaching in Physical Education*, 40(2), 327–336. <https://doi.org/10.1123/jtpe.2020-0182>
- Widiyatmoko, A. (2021). The effectiveness of Google Classroom as a tool to support online science learning: A literature review. *Journal of Physics: Conference Series*, 1918(5), 052069. <https://doi.org/10.1088/1742-6596/1918/5/052069>

- Zhou, L., Xue, S., & Li, R. (2022). Extending the Technology Acceptance Model to explore students' intention to use an online education platform at a university in China. *SAGE Open*, 12(1), 1–13. <https://doi.org/10.1177/21582440221085259>
- Zuniga-Tonio, J. (2021). Google Classroom as a tool of support for flexible learning in the new normal. *Journal of Education, Management, and Development Studies*, 1(2), 25–39. <https://doi.org/10.52631/jemds.v1i2.20>