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Building Loyalty in Zoom Meeting App for Teaching and L earning Environment

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Abstract

Objective: To understand how students establish Loyalty with the Zoom Meeting App (ZMA) platform in higher education. **Method**: The Technology Acceptance Model (TAM) was adopted and modified, incorporating trust, and social presence to establish students' loyalty to ZMA services and their level of intention to use the App. A random sample of students from the University of Professional Studies in Accra was chosen. A cross-sectional survey was used to collect data for this study. A representative sample of 552 respondents who agreed to take part in an online survey on the Zoom Meeting App (ZMA) provided responses that were used in data analysis to validate the research model. The factors influencing students' e-loyalty to ZMA adoption intentions were determined using the Structural Equation modelling (SEM) method. **Findings:** According to the findings, Perceived Ease of Use, Perceived Usefulness, Trust, and Social Presence had a direct effect on students' loyalty (β = 0.338; p = 0.000), (β = 0.096; p = 0.000), (β = 0.330; p = 0.000), and (β = 0.198; p = 0.000), respectively. Our results also show that loyalty has a significant influence on students' behavioural intention (β = 0.795; p = 0.000) to use the App. Perceived Ease of Use also has a significant positive effect on Perceived Usefulness (β = 0.240; p = 0.000). According to our findings, the indirect effect of social presence has a positive effect on its antecedents, i.e., trust (β = 0.237; p = 0.000) and perceived usefulness (β = 0.135; p = 0.000). **Novelty:** The findings show that the new research model is credible for evaluating educational technologies. The feature of social presence bridges the gap between students and lecturers, thus creating an encouraging environment for effective teaching and learning whereby information can easily be shared.

1 Introduction

The World Health Organisation (WHO) declared COVID-19 a global pandemic. The pandemic-induced lockdowns and travel restrictions affected traditional teaching and learning methods, including face-to-face and online interactions on Zoom[1]. The COVID-19 pandemic has had a negative impact on the world's economy, and one of the areas that has been greatly affected is the education sector[2]. According to[3], about 1.5 billion school-aged and university students were affected by the COVID-19 outbreak, and as a result, educational institutions were forced to close. Online programmes were in high demand as an alternative to face-to-face teaching and learning[3]. Some of the applications that were commonly used as a means of communication between teachers and students in online teaching and learning include WhatsApp, Google Classroom, Skype, and Zoom Meeting App[2]. According to[4], instructors faced many obstacles, including learning to use the new technologies in a short period of time, producing instructional materials that fit the unique setting, offering an engaging remote learning environment, and adopting new evaluation procedures. Many institutions and schools offered professional training sessions to their faculty members to ease the transition from face-to-face (FTF) to online education[4]. To facilitate this rapid transition, many universities provided their students with computers and internet connections. Students, educators, and administration struggled with the change[4].

Zoom Meeting App is an excellent application for virtual video conferencing due to its ability to facilitate seamless communication with many people without requiring direct physical contact, as well as its capacity to support learning needs in today's digital age[2]. According to[4], Eric Yuan established Zoom in 2011. It's a web-based video conferencing solution with high-quality audio, video, and screen sharing, making it ideal for virtual conferences, online lectures, meetings, and webinars. It became widely available for students, staff, and teachers at many universities. Teachers were able to create engaging learning environments by utilising Zoom's various features. These collaborative technologies, help address pedagogical objectives for involvement, making sessions dynamic and robust. There are virtual whiteboards with annotation capabilities to clarify topics, breakout rooms to facilitate small group collaboration, polls for student feedback, and chat to support class discussions. Zoom meetings can also be recorded and saved for later use[4]. The App is compatible with most electronic devices, such as computers, laptops, Android smartphones, iPhones, tablets, iPads, etc. This functionality of the Zoom meeting App makes it easy for students without laptops to install it on their smartphones and participate in virtual classes[2]. According to[5], students participation in class discussions, asking insightful questions of the instructors, working in groups on an assignment, leaving comments on blogs and discussion boards, and receiving individual help from their lecturers via Zoom offer educators a virtual learning environment (VLE) alternative to face-to-face classroom teaching and learning. This VLE option is helpful for students who live far away from the university, work full-time, or care for children, as well as those who must stay at home because they are ill or are caring for sick loved ones[5].

1.1 Research Gap

Videoconferencing and other distance learning approaches are not new, and according to[4], instructors in higher education have used them to communicate in real time for many years. Zoom's use in the classroom has been the topic of some research[4]. Research findings by[6] established that Ghanaian international students in China were satisfied with their online learning experience and thought the online courses were

practical. However, students who took classes outside of China spent a lot of money to secure internet data for online learning. According to[7], it seems students and lecturers were at ease with the use of the Zoom Meeting App during the COVID-19 challenges in Ghana. Lecturers also use the Zoom meeting App to conduct online discussions and lectures[8]. The research conducted by[7] and[8] failed to establish the factors influencing the acceptance and use of the Zoom Meeting App in Ghana. In addition, the studies by[9] and[10] also failed to address the use of the App for teaching and learning in higher educational institutions (tertiary institutions). To fill the gaps identified above, this research seeks to: (A) investigate how social presence and Trust, among other factors, influence students' loyalty and intention to adopt the Zoom Meeting App for teaching and learning in Ghana; and (B) conduct the study in a higher educational institution. While[7] and[8]used descriptive statistics and qualitative methods, respectively, in analysing their data, the researchers would employ inferential statistics in this study. The inferential method was selected because it allows hypotheses to be tested and can also be used to examine if the research data can be generalised to a wider population.

1.2 Problem Statement

While other studies have been conducted in the areas of online teaching and learning tools concerning the COVID-19 era and beyond, it should be noted that geographical locations, cultural settings, levels of education, economic situations, and other factors are not the same worldwide. For example[6], while it was done with Ghanaian students, they were studying in Beijing, China, which has a more advanced economy with reliable internet connectivity than Ghana. The research by[7] and[8] was done in Ghana; however, the focus was on primary and secondary education. [11] was completed in Malaysia, which has a more stable economy and reliable internet connectivity than Ghana.

We present empirical research based on survey responses and bootstrapping techniques in structural equation modelling to evaluate our model. As previously stated, we are interested in the long-term impact of students' acceptance of Zoom meeting learning. This study aims to (A) understand how students build loyal relationships with Zoom Meeting App services and (B) develop a new Technology Acceptance Model (TAM) that incorporates the direct and indirect influence of Social Presence on loyalty. In light of this, our research question is:

● What factors influence learners' loyalty to Zoom Meeting App Services?

Our findings employ the Technology Acceptance Model (TAM) model and support the positive relationship between behavioural intention and Zoom teaching and learning adoption, which is consistent with the literature. The Technology Acceptance Model was selected because, according to[12]'s research findings, the TAM and its many modifications represent an appropriate model for facilitating the evaluation of diverse learning technologies. [12] asserted that the core variables of TAM, perceived ease of use, and perceived usefulness are antecedent factors influencing technology-assisted learning acceptance. [12] 's conclusion was reached after identifying and reviewing 71 relevant studies published between 2003 and 2018.

1.3 Literature Review

Skype, a pioneer in video calls only a few years ago, continues to have videoconferencing rivals with Zoom[13]. Skype, which was acquired by Microsoft in 2011, has suffered from feature creep over time due to over-extension and mutation of capabilities that users don't genuinely desire[14]. Zoom's platform, on the other hand, provided users with a simpler and more dependable video call experience. However, the crisis element was crucial in Zoom's transition from a videoconferencing platform to a videoconferencing platform[13]. The Zoom programme has recently emerged as a popular choice for most people in the realm of education and has become the industry leader in modern workplace video communications, offering a simple and dependable cloud platform for video and audio conferencing, collaboration, chat, and webinars on mobile devices, PCs, phones, and room systems[15]. Zoom Rooms is the original software-based conference room solution, and it's utilised in board rooms, conference rooms, huddle rooms, training rooms, executive offices, and classrooms all around the world.

Zoom Meeting App (ZMA) is a cloud-based online conferencing tool. We can nearly only communicate with people visually, via video, voice, or both, via live chats. You can record the conversation and watch or listen to it afterward. One-on-one meetings, virtual group conferencing, and screen swapping are all options[15]. Educators throughout the world have begun to use technology-based software or "just-in-time" teaching approaches in unprecedented ways[16]. The government's deployment of social distance has had a significant impact on tertiary learning methods. Colleges organise collaborative class meetings and internet meetings for home assignments[16]. Students can tailor materials to their requirements with the help of online learning. This is because online learning makes use of cutting-edge technology. Synchronous and asynchronous online learning are the two types of online content delivery in classrooms that are important in implementing online classes like online discussions, instant messages, and websites by replicating regular classroom learning experiences that include social relationships not only between students and teachers but also between students[15,17].

We discovered the application of technology adoption studies under the line of portraying an individual user or systemic dissemination of e-learning or virtual learning environments. The technology Acceptance Model (TAM), Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), Expectation-Confirmation Model (ECM), Social Cognition Theory, and Diffusion of Innovations (DOI) are among the many theoretical frameworks studied. Fred D. Davis created the Technology Acceptance Model (TAM) in 1989 to explain how users accept and use technolog[12]. This model posits that a user's attitude towards utilising technology, following behavioural intentions, and actual usage are all predicted by perceived usefulness and perceived ease of use. Perceived usefulness in TAM refers to a user's belief that employing technology will improve their work performance[12]. The user's perception of how easy it is to use is referred to as perceived ease of use. The user's attitude towards technology and their choice of using it have an impact on their desire to utilise it. TAM has been used in much research, and many people use it to measure technological acceptance[12]. TAM has been enhanced in the study to incorporate external characteristics such as social presence, e-loyalty, and trust, which will be measured using perceived usefulness, perceived ease of use, and behaviour intention.

2 Methodology

Quantitative research quantifies a research problem by generating numerical data related to the problem's various variables, which can then be analysed and transformed into usable statistics to generate meaningful results. Quantitative research is an effective method for generalising findings across a large population and determining the relationship between variables[18]. The correlational research design was used in this study, which attempts to determine the relationship between two or more variables using statistical data. The study includes six variables, as shown in Figure 1, and data on these variables is collected using a survey questionnaire.

The sample was chosen using a simple random sampling method. This technique was selected for two reasons; (A) it produces higher-quality data collection since the sample accurately represents the population, and (B) the research bias in a sample derived from a population is negligible to nonexistent.

2.1 Research Model and Hypotheses

Our proposed model for this study is shown in Figure 1 . It seeks to explore how to better comprehend the Zoom meeting App services for teaching and learning experiences in an educational setting. The model integrates the constructs of social presence, trust, and e-loyalty with the original TAM constructs; Perceived Ease of perceived ease of use and perceived usefulness. The model's components and evidence for hypothesised causal relationships with appropriate supporting literature are detailed in Figure 1 below.
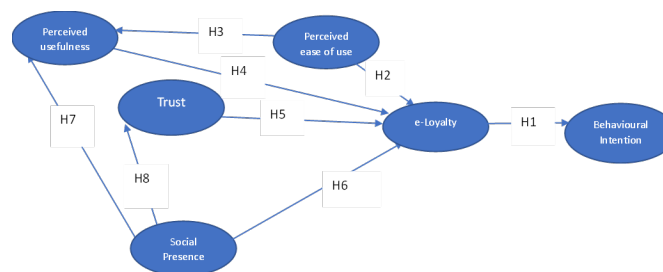

Fig 1. Conceptual model

2.1.1 The linkages between TAM and Variables
2.1.2 E-loyalty
E-loyalty can be defined as customers' intentions to return to and repurchase from an e-commerce portal, even when other options are available[19]. In the context of virtual learning, e-loyalty can be defined as learners' intentions to return and reutilize a virtual learning environment even when the traditional face-to-face method of teaching and learning is available. Fred D. Davis's Technology Acceptance Model (TAM), published in 1989, has been cited, extended, and modified in many studies[12]. The TAM has also been applied in most e-loyalty studies[19–21]. The central constructs in the TAM models that determine technology adoption or online loyalty to new technologies continue to be perceived ease of use and perceived usefulness[12] and[19]. Additionally, other constructs that also determine online transaction loyalty include trust[20] and social presence[21].

According to [19,21,22], intention has a positive effect on Loyalty. As a result, we propose the following hypothesis:

H1: e-loyalty will have a positive effect on students' behavioural intention to use ZMA.

2.1.3 Perceived Usefulness and Perceived Ease of Use

TAM's core variables, perceived ease of use and perceived usefulness, are antecedent factors influencing the acceptance of technology-assisted learning [12]. Fred D. Davis hypothesised that a user's attitude towards the system was a major basis for whether s/he would either use or reject the system. In 1986, Davis defined perceived usefulness as the degree to which a person believes that using a specific system will improve her or his job performance, whereas perceived ease of use was defined as the degree to which a person believes that using a specific system will be free of effort [12]. Previous research in 2006 and 2007 by Cyr et al., cited by [19], established a link between usefulness and loyalty. Also, according to [19], in 2009, Cyr et al. established efficiency, a construct very similar to ease of use and e-loyalty in the case of websites. According to [19], Davis established the causal link between ease of use and usefulness in 1989, which was re-verified in the modified version of TAM (TAM2) by Venkatesh and Davis in 2000. [19] cited multiple studies based on TAM in the context of Internet adoption (e.g., Agarwal and Karahanna in 1998; Chen et al. in 2002; Lu et al. in 2005; Moon and Kim in 2001) that have demonstrated that ease of use influences usefulness. The research findings by [19] in 2019 established that both usefulness and ease of use have a significant direct effect on e-loyalty. [19] findings also show that perceived ease of use has a significant effect on perceived usefulness. The findings conform with the literature. Based on the above logic, it is logical to hypothesise that

H2. Perceived Ease of Use has a positive impact on students' loyalty to ZMA

H3. Perceived Ease of Use has a positive impact on students' perceived usefulness

H4. Perceived Usefulness has a positive impact on students' loyalty to ZMA

2.1.4 Trust (TS)

According to [21], Essawy defined trust in 2006 as the consumer's belief or expectation that the online seller will be trustworthy and act in a reliable, ethical, and socially appropriate manner. Trust has been used as a construct in studies such as this one to understand users' interactions with a website [20,21]. In this study, we define trust as an overall positive attitude towards ZMA services vis-à-vis their goodwill and capability in the post-interaction stage. According to [20,21], trust positively influences loyalty. Based on the above research findings, we hypothesise that

H5: Trust has a positive impact on students' Loyalty to ZMA

2.1.5 Social presence (SP)

The feeling of being with a real person in a virtual or online environment is referred to as social presence [21]. It can also be defined as the subjective experience of being physically present in a mediated, online interactive environment. Research by [21] shows that social presence impact has a direct impact on loyalty and trust. In Addition, a study by [23] also shows a positive impact of social presence on both perceived usefulness and trust. Previous research shows social presence has a positive effect on trust [21]. Based on the reasons stated above, the researchers propose the following hypotheses:

H6: Social presence has a positive impact on students' e-Loyalty to ZMA

H7: Social presence has a positive impact on students' perceived usefulness

H8: Social presence has a positive impact on students' trust

2.2 Research Design and Method

A total of 552 students completed the survey. All the participants were undergraduate students of the University of Professional Students, Accra (UPSA). These Students are a representative and acceptable sample for the ZMA teaching and learning study since they have been exposed to the Zoom Meeting App during and after the COVID-19 Pandemic locked down in Ghana for virtual teaching and learning. Subjects completed an online questionnaire regarding their approval of ZMA teaching and learning services. All seven theoretical constructs were measured using a five-point Likert scale (1 = strongly disagree and 5 = strongly agree), commonly used in marketing, information systems, and social science research. Reliability and validity tests were carried out to ensure that the transformed scales were suitable. Cronbach's values were used to determine the reliability of the constructs in this study, and all items had a Cronbach's value of 0.7 or higher as reported by [21]. The questionnaire was then provided to a group of experts at the University of Professional Studies, Accra, who judged the scale's suitability. The surveys were hosted on Google Forms, which has a lot of tools for questionnaire design and response tracking.

The Partial Least Square (PLS) technique using SmartPLS 3.3.3 was used to examine the data because it is a data analysis method that is particularly well adapted to small data sets [21]. Unlike other methods that require a larger sample size, such as

SEM, PLS can be effective for analysing data with smaller samples because it uses a different algorithm to compute solutions involving principal component analysis rather than maximum likelihood factor analysis, which allows solutions to be reached with far smaller sample sizes[21]. Second, PLS makes no distributional assumptions, whereas other methods, such as SEM, assume that the data has a normal distribution; PLS can use both reflective and formative scales, whereas other methods use mostly reflective scales[21]. Previous PLS investigations, particularly in the field of technology adoption, have shown that samples of this size and smaller can produce reliable results[21].

2.2.1 Data Collection
Five hundred fifty-two (552) valid responses were submitted to the online survey. According to demographic information, there were more men (55.1%) than women (44.9%) among the respondents, who were mainly in their twenties. 12.3% of respondents were under the age of 18, 26.1% were between the ages of 18 and 20, 46.0% were between the ages of 21 and 22, 12.1% were between the ages of 23 and 24, 2.2 percent were between the ages of 25 and 26, and the final 1.3 percent were older than 26. All respondents were undergraduate students: 14.3% studied accounting, 6.5% studied marketing, 27.5% studied information technology, 7.6% studied public relations, 7.6% studied banking and finance, and the rest (36.4%) studied business administration. While 69.2% of students have used the app for at least two years, only 30.8% have used it for at least a year.

3 Results and Discussion

3.1. Measurement model

The measurement model was evaluated using the PLS technique with SmartPLS 3.3.3 software. This study includes reflecting metrics in its analysis of the measuring methodology. We started by examining the indicator loadings. When the loadings are larger than 0.50, the construct is responsible for more than half of the variation in the indicator[24]. The constructs' internal consistency and dependability were examined. For the composite reliability criteria, greater numbers represent better degrees of dependability. "Acceptable to good" reliability ratings range from 0.70 to 0.95[25]. Cronbach's alpha, which assumes the same criterion, is used to quantify internal consistency and dependability. [26] consider reliability ratings of 0.70–.95 reasonable. Convergent validity, which explains how a construct converges with the variance of the items, is also calculated. Convergent validity is measured using the items' average variance extracted (AVE) related to a particular construct. To be regarded as acceptable, the AVE must be 0.500 or higher[27], and it must account for (more than) 50% of the variation in its components on average. According to the data in Table 1, all constructs had Cronbach alpha and composite reliability values that were higher than the permitted limit of 0.7.

Discriminant validity[28] is the final level that reveals how empirically distinct a notion is from others. The heterotrait-monotrait ratio of correlations is used to test discriminant validity in PLS-SEM. The heterotrait-monotrait (HTMT) ratio criterion, which surpasses the Fornell-Larcker criterion and cross-loading evaluations in PLS-SEM, is a novel condition for measuring discriminant validity[26]. Tables 2 and 3 show the discriminant validity and HTMT measurement of the model's outcomes; all computations were reported to match the examination's standards. Our constructs HTMT values were all accepted because they were less than 0.9 at a 5% confidence interval since the HTMT cutoff is either 0.85 or 0.9.

Table 1. Construct reliability and validity

Items	Constructs	Loadings	CA	CR	AVE
	Behavioural intention		0.846	0.905	0.761
BI1	I intend to continue using the Zoom meeting App for teaching and learning in the future	0.894			
BI2	I will always try to use the Zoom meeting App for online teaching and learning	0.846			
BI3	I plan to continue to use Zoom Meeting App for teaching and learning	0.877			
	E-Loyalty		0.890	0.932	0.821
EL1	I would use this school's Zoom meeting App again	0.915			
EL2	I am likely to take another online course using the school's Zoom meeting App	0.852			
EL3	I will recommend other people to take online courses using the Zoom meeting App	0.949			
	Perceived Ease of Use		0.925	0.947	0.818

Continued on next page

Table 1 continued

PEOU1	I can easily participate and contribute in class when using the school's Zoom meeting App	0.853			
PEOU2	The school's Zoom meeting App is a user-friendly virtual platform for teaching and learning	0.930			
PEOU3	My interaction with this school's Zoom meeting App is clear and understandable.	0.906			
PEOU4	The Zoom meeting App is easy to use for teaching and learning	0.927			
Perceived Usefulness			0.808	0.887	0.724
PU1	This school's Zoom meet App provides good-quality information on online courses	0.899			
PU2	This school's Zoom meeting App improves my performance in assessing academic resources	0.792			
PU3	This school's Zoom meeting App increases my effectiveness in online academic courses	0.857			
Social Presence			0.851	0.909	0.770
SP1	There is a sense of human contact in the school's Zoom meeting App	0.921			
SP2	There is a sense of personalness in the school's Zoom meeting App	0.858			
SP3	There is a sense of sociability in the school's Zoom meeting App	0.852			
Trust			0.855	0.911	0.774
TS1	I can trust the school's Zoom meeting App for teaching and learning	0.928			
TS2	I trust the information presented on the school's Zoom meeting App for teaching and learning	0.883			
TS3	I feel the school's Zoom meeting App would provide me with good service	0.825			

Table 2. Discriminant validity using Fornell–Larcker Criterion

	Behavioural intention	E-Loyalty	Perceived Ease of Use	Perceived Usefulness	Social Presence	Trust
Behavioural intention	0.873					
E-Loyalty	0.795	0.906				
Perceived Ease of Use	0.637	0.609	0.904			
Perceived Usefulness	0.305	0.288	0.308	0.851		
Social Presence	0.436	0.473	0.510	0.257	0.878	
Trust	0.492	0.532	0.427	0.110	0.237	0.880

Notes: Construct correlations with the square root of AVE along the diagonals

Table 3. Discriminant validity using Heterotrait-monotrait ratio (HTMT)

	Behavioural intention	E-Loyalty	Perceived Ease of Use	Perceived Usefulness	Social Presence	Trust
Behavioural intention						
E-Loyalty	0.890					
Perceived Ease of Use	0.714	0.664				
Perceived Usefulness	0.357	0.332	0.359			
Social Presence	0.480	0.534	0.564	0.311		
Trust	0.561	0.599	0.473	0.133	0.280	

3.2 Structural Model

Table 4 displays the findings from the structural model used to test our suggested hypotheses. All hypotheses were accepted at a 5% significance level. All the accepted hypotheses had a significant positive effect and were confirmed by the literature. To evaluate the structural model, researchers[29] advocate looking at R^2, Q^2, and model fit (See Table 5). The values of 0.632,

0.503, 0.109, and 0.056, respectively, represent strong, moderate, moderate, weak, and weak R^2 values, as recommended by [30]. Furthermore, Q^2 values greater than zero suggest a respectable degree of prediction accuracy for a given endogenous component [31]. The Q^2 data show sufficient prediction accuracy for exogenous factors based on the proposed assessment standards [30].

Figure 2 depicts the estimation of path coefficients according to structural equation modelling using SmartPLS. All eight (8) pairs of relationships in our proposed model are significant at the 0.05 level.

Table 4. Path coefficients and their significance

Hypotheses		β	t	p-values	Results
H1	E-Loyalty -> Behavioural intention	0.795	41.976	0.000	Supported
H1	E-Loyalty -> Behavioural intention	0.795	41.976	0.000	Supported
H2	Perceived Ease of Use -> E-Loyalty	0.338	8.627	0.000	Supported
H3	Perceived Ease of Use -> Perceived Usefulness	0.240	4.609	0.000	Supported
H4	Perceived Usefulness -> E-Loyalty	0.096	4.118	0.000	Supported
H5	Trust -> E-Loyalty	0.330	7.313	0.000	Supported
H6	Social Presence -> E-Loyalty	0.198	5.356	0.000	Supported
H7	Social Presence -> Perceived Usefulness	0.135	2.979	0.003	Supported
H8	Social Presence -> Trust	0.237	4.826	0.000	Supported

Table 5. The results of R^2 and Q^2

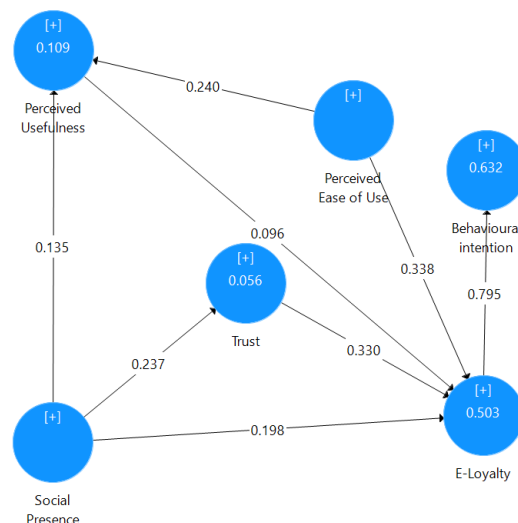| Path	R^2	Q^2
Behavioural Intention	0.632	0.360
E-loyalty	0.503	0.388
Perceived usefulness	0.109	0.100
Trust	0.056	0.050

Fig 2. PLS results for structural model

According to H1, e-loyalty strongly impacts students' behavioural intentions to use UPSA Zoom meeting App services for teaching and learning. The findings confirm that e-loyalty has a positive impact on behavioural intention ($\beta = 0.795$; p = 0.000). Our results also show that perceived ease of use, perceived usefulness, trust, and social presence all have a significant positive effect on e-loyalty ($\beta = 0.338$; p = 0.000), ($\beta = 0.096$; p = 0.000), ($\beta = 0.330$; p = 0.000), and ($\beta = 0.198$; p = 0.000), respectively.

The findings also show that perceived ease of use has a positive effect on perceived usefulness (β = 0.240; p = 0.000). This suggests that UPSA students find the app effective for teaching and learning because it is simple to use and gives the impression that they are in-person. Social presence has a positive effect on trust (β = 0.237; p = 0.000) and perceived usefulness (β = 0.135; p = 0.000). These results conform with the literature and imply that students find the App easy to use and useful and trust the services derived from it.

Our findings indicate that students who have a higher level of trust in the ZMA platform are more likely to continue using its services. This outcome is consistent with a previous conceptual idea on the effect of trust on loyalty[20,21,24]. This implies the students trust the App as a medium for engaging lecturers and therefore will continue to use it for teaching and learning.

Our data analysis results show that perceived ease of use and perceived usefulness positively influence students' loyalty to accept and use ZMA. This finding indicates that the more friendly the technology-assisted platform, the more useful and user-friendly it will be perceived, and the more likely a student will use Zoom. Our findings conform with previous studies on the effects of perceived usefulness and ease of use on loyalty[10,19,24]. This implies the students will continue to use the App because it has useful and easy-to-use features.

Our results show that social presence has a positive influence on loyalty to the App. This outcome conforms with a previous study[21]. In addition, according to our results, social presence also has a significant influence on perceived usefulness[24] and trust[21]. The findings may be useful for higher education institutions that use ZMA platforms in terms of retaining students' loyalty and ensuring that the academic calendar is not disrupted. The positive direct and indirect effects of Social Presence on loyalty show that students prefer the social presence elements in the App that allow for mutual interactions and information sharing. This implies that the feature of social presence bridges the gap between students and lecturers, thus creating an encouraging environment for effective teaching and learning whereby information can easily be shared.

Our findings also attest to the fact that the TAM and its many versions represent a reliable model for helping in the evaluation of different learning technologies[12]. This research offers a new theoretical framework (model) that contains a cognitive-affective component (trust) and a behavioural component (social presence), which are connected to e-loyalty in the context of educational technologies. The TAM has demonstrated that it is an acceptable theoretical foundation model for explaining technology uptake[12]. The study concentrated on university students who had previously used the App for at least one academic year. The research has shown that students will have e-loyalty intentions towards an online learning tool such as the Zoom Meeting App if they recognise its value and acknowledge that the technology is user-friendly and meets their learning requirements.

Students' loyalty has a significant and positive influence on their behavioural intention towards ZMA, with a predictive power of 79.5%. In addition, their perceived ease of use has the most substantial and positive impact on their loyalty to ZMA, followed by trust, social presence, and perceived usefulness, with predictive powers of 33.8% and 33.0%, 19.8%, and 9.6%, respectively.

3.3 Implications

The findings of this study may directly and immediately affect institutions that implement distance education or blended teaching and learning from the perspective of practitioners. The most successful accomplishment of the App was during the COVID-19 pandemic, when many academic institutions moved from face-to-face teaching and learning to virtual platforms, using the Zoom meeting App as one of the tools to connect with their students. Services of the App that incorporate social presence, such as video conference and instant chat, among others, directly and indirectly increase the level of users' loyalty to the ZMA platform. Hence, institutions using or planning to use ZMA should think about activating the social presence features in the App for effective teaching and learning. The significant impact of social presence on loyalty using ZMA requires academic institutions to modify their educational procedures to meet students' learning demands outside of the four walls of the classroom. It turns out that the feature of social presence bridges the gap between students and lecturers, thus creating an encouraging environment for effective teaching and learning whereby information can easily be shared.

3.4 Limitation

This study has some limitations, as with many other research projects where generalisation is a problem. Future research should ascertain how broadly the conclusions made in this paper apply to different academic institutions, situations, and eras. All the participants in this study were university students who were not pursuing distance degrees. Future research can focus on either distance students or both, which can also be moderated by demographic samples (age, gender, culture, education, etc.). Second, future studies should examine the actions taken by both dedicated and disinterested online learners. Third, the researchers used only one educational institution, which could have biased the results because of the common institutional App. Future studies should cover two or more institutions from different locations in the country.

4 Conclusion

This research work suggests and evaluates a new model from a theoretical perspective. The most significant finding from this research is that the students believe that having meaningful online interactions while studying is essential since it is easy to use (β = 0.338; p = 0.000) and also useful (β = 0.096; p = 0.000) for teaching and learning. The students also trust (β = 0.330; p = 0.000) in the teaching and learning resources they access via ZMA services. The social presence (β = 0.198; p = 0.000) feature in the App makes the students view their online interactions via the App as real thus developing trust (β = 0.330; p = 0.000) in the system. Furthermore, our model also confirms the links and relationships that have been demonstrated in some prior studies. This study also validates TAM's robustness, as agreed in other studies, in explaining students' acceptance of information systems (IS).

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