The Effectiveness of Learning Accounting Information System with MonsoonSIM

Mahmudi[1], Maulidyati Aisyah[2], Herlina Rahmawati Dewi[3], Asaquita Sophie Premarci[4]
[124]Universitas Islam Indonesia, Indonesia
[3]University of Pecs, Hungary
Correspondent: mahmudi@uii.ac.id[1]

ABSTRACT: Several accounting education institutions have adopted an experiential learning model through business game simulation to enhance students' ability in understanding course material and increase their competence. MonsoonSIM is a platform that provides business simulations packaged in the form of web-based games that offer students the experience of running a business virtually. This research examines the effectiveness of using MonsoonSIM in increasing student competency in the Accounting Information Systems (AIS) course from the perspective of TAM and UTAUT theory. This study is quantitative research with a survey approach. The sample for this research was 102 students who used MonsoonSIM as a learning medium for the AIS course. This study confirms that Perceived Ease of Use, Facilitating Condition, and Social Influence regarding the use of MonsoonSIM have a positive significant influence on Students' AIS competence. Then, the higher student's competence in AIS, the better Students' Learning Outcome. However, Perceived Usefulness and Perceived Enjoyment of MonsoonSIM do not affect significantly on Students' AIS Competence. This study support of the use of business game simulation in accounting education institutions to enhance the better understanding of AIS.

Keywords: MonsoonSIM, Experiential Learning, Game Simulation, Learning Outcome, AIS Competence.

INTRODUCTION

Accounting profession faces tremendous challenges in the era of digitalization (Gulin et al., 2019). In the digital era, Accounting Information Systems (AIS) are the leading pillar in adopting the latest technology (Soudani, 2012). This is very reasonable because managers need fast and reliable information produced by the company's accounting information system (Stefanou, 2006). Therefore, accounting education institutions need to make AIS combined with information technology as a top priority to assist decision making that can contribute to improving organizational performance (Yoshikuni et al., 2023).

However, the success of implementing an accounting system is greatly influenced by the competence of the employees who operate and develop the system (Soudani, 2012). Students often experience difficulties in understanding accounting systems courses because of the abstract explanations about the application of this knowledge in company practice. Many students do not understand the real practices of business processes in companies.

AIS is an important subject in accounting education that focuses not only on accounting but also on data management, decision-making, and information system. Because of the uniqueness of the AIS course for students, effective learning methods for this course are an issue in accounting education (Moradi et al., 2020). Unfortunately, many students face some difficulties in studying AIS due to the complexity of the course structure and teaching style (Vatanasakdakul & Aoun, 2011). Therefore, providing effective AIS teaching methods is a challenge for accounting education. Kharbat & Muqattash, (2020) suggested that accounting education should continuously update technology-related courses including AIS in the era of digitization. Guizi et al., (2021) urge to reform undergraduate accounting teaching with a more innovative teaching model in the era of digital intelligence and artificial intelligence.

One of the learning models for the AIS course that can be developed is through the experiential learning model. David Kolb in 1984 developed a learning method in the form of experiential learning and it has been proven to be applicable in several academic institutions (Jonathan & Laik, 2019). The experiential learning method can bridge the theory learned in college with the reality of business practice (Wrenn & Wrenn, 2009). Experiential learning has many forms of activities such as company visit, field study, internship, practicums, and business simulation.

Business simulation game has been adopted by several universities as their learning method with the focus on economic and managerial (Peterková et al., 2022). Through business simulation games, students are more enthusiastic in learning because they feel involved in carrying out the company's business activities (Dharmastuti et al., 2021). Students engage in designing planning, implementing, and making business decision making (Laurischkat & Viertelhausen, 2017).

Business simulation game is an alternative model of innovative teaching method in business and accounting course that promotes student-centered learning and an experiential learning approach. Using business simulation game as a pedagogical approach can be classified as game-based learning. Although it had been used as a learning tool at several universities, business game simulation should be developed by integrating it to the state of the arts technology, for example augmented reality game-based learning. There are several platforms of business simulation game that can be used such as MonsoonSIM, ERPsim, HEC Montreal, Business Simulation Suite, JA TITAN, and UNISIM.

There is still little research that tests the effectiveness of using business simulation game methods in accounting, especially those that use MonsoonSIM as AIS learning tool. Previous studies investigated the relationship between the use of game simulation and students' competency on business management (Dharmastuti et al., 2021). Susanti et al. (2020) found that students had better competencies when the AIS course was integrated with SAP compared to when the course

was carried out conventionally without being integrated with SAP. SAP is an integrated accounting software that provides business game simulation for the student in understanding accounting cycles and business processes. This study explores the effectiveness of using MonsoonSIM in learning AIS.The objective of this research is to investigate the impact of using MonsoonSIM toward students' competency in the AIS. Specifically, this study investigates whether perceived usefulness, perceived ease of use, perceived enjoyment, facilitating condition, and social influence in using MonsoonSIM affect the students' AIS competency and learning outcome.

This study provides several contributions. This study provides new evidence regarding the effectiveness of using gamification and experiential learning as the learning method in accounting education. This study also enriches the literature of the adoption of accounting technology in supporting courses understanding and students' competences.

Technology Adoption

Accounting information systems is one of the courses that has high technological content in accounting education. AIS covers several course materials such as the accounting procedures, data management, application programs, information technology infrastructure, and internal control (Romney et al., 2020). In AIS, students learn business process including revenue cycle, expenditure cycle, production cycle, payroll cycle, and reporting cycle. Companies vary in adopting technology to support the implementation of corporate accounting information systems. There are several factors that influence technology adoption, such as explained by Technology Acceptance Model (TAM). TAM theory explained there are several behavioral factors that influence technology adoption, i.e. perceived usefulness and perceived ease of use (Davis, 1989). The TAM theory underwent development until it gave birth to the UTAUT 1 and UTAUT 2 theories. The TAM and UTAUT theories became mainstream research used in technology adoption research (Marikyan & Papagiannidis, 2023).

TAM is the most basic acceptance model used to predict the intention to adopt technology and information system. However, TAM has limitation because this theory does not consider the influence of external factors such as social and environmental that play important roles in deciding to adopt new technology. Because of the limitations of the TAM theory, Venkatesh et al. (2003) then developed the Unified Theory of Acceptance and Use of Technology (UTAUT). The first model of UTAUT consists of four factors, i.e. performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). Venkatesh et al. (2012) then developed other three constructs into UTAUT 2, i.e. hedonic motivation, price value, and habit.

This research is based on TAM theory to predict the influence of the variables perceived ease of use and perceived usefulness of the use of MonsoonSIM on student competency in AIS courses. Meanwhile, to predict the influence of social influence, facilitating conditions, and perceived enjoyment variables on student competence in AIS courses, the UTAUT theory is used. Then, to predict the influence of student competency in AIS courses on perceived learning outcomes we used the learning model theory proposed by Harter (1988).

MonsoonSIM Business Simulation

Higher education has used business simulation game for around half a century (Faria, 2006; Faria et al., 2008). The superiority of business simulation game is this method provides a glimpse of the real-world application of accounting system that cannot be gained from theory in the textbooks. Through business simulation game, students improve their performance by finding out business solution according to the most suitable strategy for any possible situation (Vos & Brennan, 2010). By taking part in a business simulation game, students can absorb knowledge while following the game flow (Liu et al., 2011).

Students in the business simulation games are the active players that each of the participants has the role to complete certain tasks. Through role playing, participants explore and find solutions to every business problem that must be overcome (Ruohomäki, 1995). The use of role playing can be used to increase understanding, creativity and innovation in business, accounting, auditing and information systems courses (Powell et al., 2020). Previous study suggested that students engaged in experiential simulation learning perform better than the traditional approach (Sathe & Yu, 2021). Learning and knowledge are slightly different concept but have close relationship (Kolb et al. (2014). Learning refers to the understanding of a student that is created through repetitious process whereby knowledge refers to the understanding acquired through the transformation of experience. Business simulation game provide the model of business reality that can stimulate understanding and skill that could not be gained in traditional class (Vartiainen & Ruohomäki, 1994). Through business simulation games, accounting students can improve their accounting skills and understanding of business processes because it is as if they are actors in the transaction and decision-making process (Srimaryani et al., 2023).

MonsoonSIM is a learning platform that use artificial intelligence to improve the understanding business process. There are over 80,000 MonsoonSIM users around the world that are registered. MonsoonSIM can be run in group that consist of several players, maximum five people. There are at least 12 modules available in MonsoonSIM that can be simulated, including Finance, Warehouse & Logistics, Human Capital Management, Marketing, Service, Wholesale, Retail, Forecasting, and Maintenance.

Hypothesis Development

Not many studies investigated the factors that influence the decision to use games as a learning tool in education sector (Cronan & Douglas, 2012). Previous study conducted by Shafudin et al. (2018) focus on the determinant of the use of MonsoonSIM business simulation at Universiti Teknologi Malaysia (UTM) for undergraduate program. They found that the intention to use MonsoonSIM was affected by perceived usefulness and perceived enjoyment.

Research regarding the effect of using MonsoonSIM as a learning tool to improve student competence in business has been conducted by Dharmastuti et al. (2021). They provide empirical evidence that perceived usefulness, perceived ease of use, and perceived enjoyment of using MonsoonSIM affect students' competency in business. The use of MonsoonSIM as a form of experiential learning method actually can be applied in other subjects. Hwang (2019) observed online asynchronous class using business simulation, i.e. HEC Montreal. The results of his study

showed that after using such business simulation the students had better understanding in business decision compared to the previous condition when using traditional method. Therefore, all measures have positive effect of learning from the use of the game. Another study conducted by Shafudin et al. (2018) found that the perceived usefulness affects the students' interest in using MonsoonSIM. Hypothesis 1 is stated as below:

H1: *Perceived Usefulness of MonsoonSIM has a positive effect on the students' AIS competency.*

Based on TAM, perceived ease of use can affect the users' intention in adopting the new technology (Davis, 1989). Perceived ease of use related to the users trust toward of new technology that is believed can help them doing their work better. Perceived of use is is about the belief of the user that there will be less effort in using the new technology. Perceived ease of use is closely related to user friendly technology. Based on UTAUT, perceived ease of use is related to effort expectancy or level of effort that is needed by user to operate the new technology (Venkatesh et al., 2012). Users tend to choose to adopt new technology because of their expectation of how simple the technology is (Im et al., 2011). Dharmastuti et al. (2021) found that perceived ease of use has a positive effect towards the students' business competency. Hwang (2019) showed perceived ease of use had a positive effect towards the student understanding of the university course. The hypothesis 2 is proposed as followed:

H2: *Perceived ease of use in using MonsoonSIM has a positive effect on the students' AIS competency.*

Perceived enjoyment is how the user is delighted to use the new technology because the activity is interesting (Shin & Lee, 2014). Perceived enjoyment has a relationship with the intrinsic motivation which brings joy and fun feeling in using certain technology (Davis et al., 1992). Dharmastuti et al. (2021) showed that perceived enjoyment in using MonsoonSIM as the business simulation game has positive impact on student competency in business. Using MonsoonSIM as learning tool to understand business process brought enthusiasm for the students and reduce stress. Other empirical evidence showed by Shafudin et al. (2018) Universiti Teknologi Malaysia students who used MonsoonSIM business simulation admitted that MonsoonSIM entertained and improved their understanding. Hypothesis 3 is stated as below.

H3: *Perceived enjoyment in using MonsoonSIM has a positive effect on the students' AIS competency.*

The decision to use a new technology can be influenced by the social environment. Other people's opinions regarding their experience of using new technology can be a reference for accepting or rejecting the use of new technology (Venkatesh et al., 2012). Social influence plays an important role in influencing technology adoption behavior. The more suggestions and testimonies of other people regarding the benefits of a technology can make individuals more confident in using that technology (Thompson et al., 1991). Research by Silva et al. (2020) confirmed that accounting students have a positive attitude towards the use of game-based learning due to social influences in their environment. The model of UTAUT suggested that the social influence was a significant factor that affect individual behavior toward using certain technology.

H4: *Social influence in using MonsoonSIM has positive effect on the students' AIS competency.*

Facilitating conditions related to the user believed that there is support both technically and organizationally to use a certain technology (Venkatesh et al., 2003). Facilitating condition can be in many forms such as hardware, internet connection, and help service. Users commonly need guidance and help in adapting to the new technology and user tend to stop using the new technology if the facilitating condition is not sufficient (Lewis et al., 2013). Facilitating condition is the environmental factors that influence the ease of using the new technology (Venkatesh et al., 2012). Susanto et al. (2021) found that facilitating condition had significant impact on the behavior of the user in using the new technology. Therefore, hypothesis 5 is stated as follow:

H5: *Facilitating conditions in using MonsoonSIM has a positive effect on the students' AIS competency.*

Students are provided with various courses to improve their competencies. According to Hoffmann (1999) there are two different concepts of competency. The first view states that competency is embedded in a person naturally. The other view holds that competency is a set of performance and standards which can be used to measure the output of learning. Competency can be seen as the set of observable performance that consist of knowledge, skills, and abilities that contribute to the enhancement of an individual's performance. There are three domains of competence that represent individual different including cognitive, social, and physical (Harter, 1988). Based on the study conducted by Dharmastuti et al. (2021) students' competency increases after using the MonsoonSIM business simulation. They also found that students' competency positively affects learning objective. Dharmastuti et al. (2021) showed that students' competency is the mediate variable between perceived usefulness and perceived enjoyment to the learning objective.

H6: *Students' AIS competency has positive relationship with perceived learning outcome.*

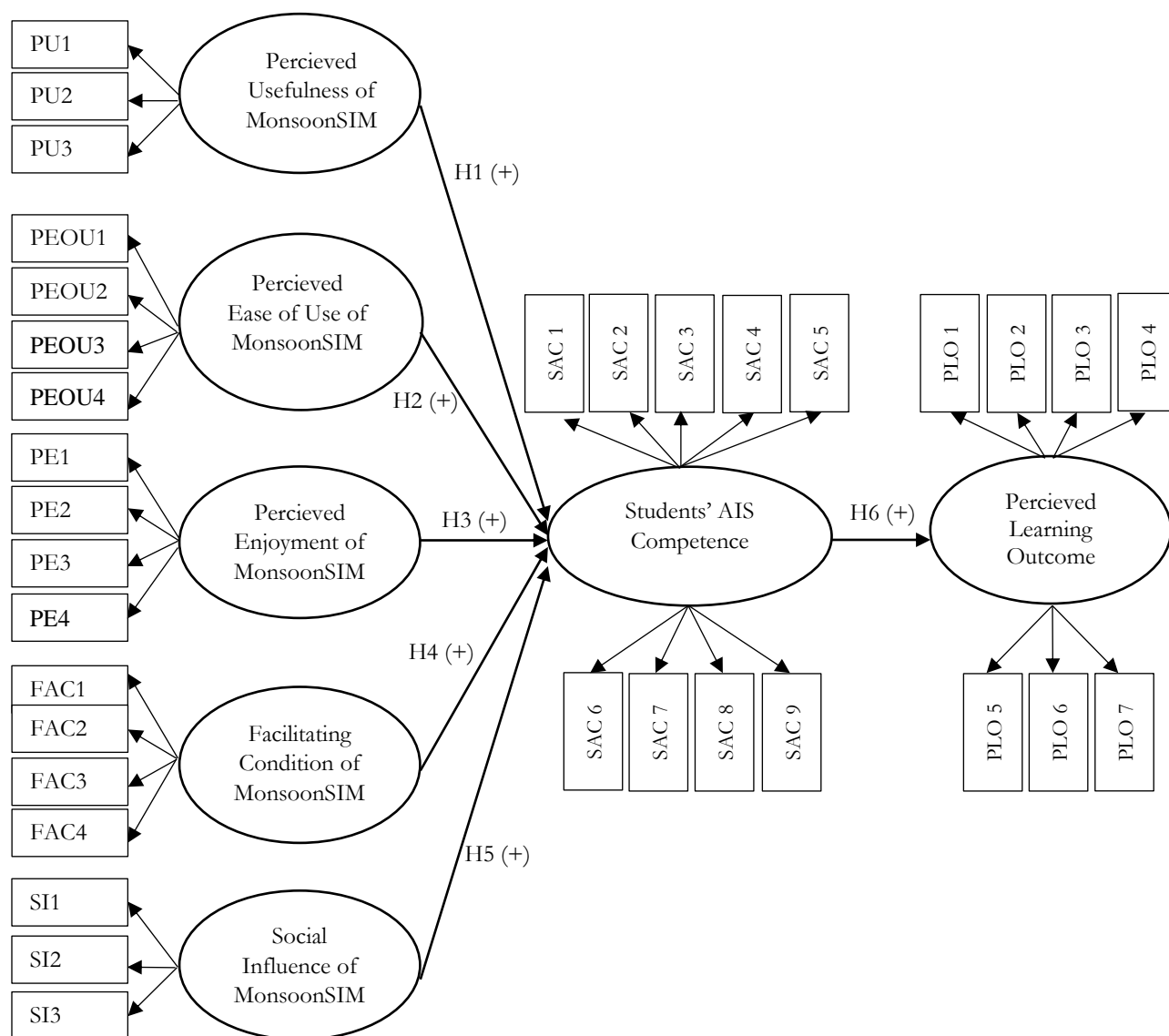**Figure 1** depicted the research model proposed.

Figure 1. Research Framework

METHOD

Sample

The population in this study were accounting students who had taken AIS subjects using MonsoonSIM as a learning tool. The sample for this research is accounting students of Universitas Islam Indonesia (UII) who have taken the AIS course and used MonsoonSIM. UII students were chosen as the research sample because UII is actively participated in MonsoonSIM competition at the national and international level for more than 10 years. UII Accounting Team frequently won national and international MonsoonSIM championship. At the time this research was conducted there were around 300 active MonsoonSIM users. We used a purposive sampling method to obtain

research data with sample criteria, namely that students had taken AIS courses and the class used MonsoonSIM to support course learning. The final sample results obtained were 102 students.

Research Variables and Measurement

This study consists of five independent variables, i.e. ease of use, perceived usefulness, performance expectancy, effort expectancy, and facilitating conditions. These independent variables are measured with questionnaire developed by Venkatesh et al. (2012) and Tao et al. (2009). Students' AIS competency as mediating variable is measured with questionnaire adopted from Harter (1982) and referring to the study conducted by Haleem & Kevin (2018). Whereas dependent variable is students learning outcome which is measured using instrument developed by Venkatesh (2012). Data is obtained by distributing questionnaire through google form. The eligible respondent should fulfil criteria, such as respondents must be the active users of MonsoonSIM and has taken AIS course with MonsoonSIM business simulation as the learning tool.

Data Analysis

Data analysis is conducted through descriptive analysis and inferential statistics. Descriptive analysis is used to interpret and summarize raw data that could explain the characteristic of data such as the frequency, minimum value, maximum value, mean, and standard deviation for every variable. Inferential analysis in this study is used to test hypotheses. This study employed Pearson correlation and multiple linear regressions. Pearson correlation is used to measure the strength of association between two variables and multiple linear regression is used to analyze the significancy level of the association between dependent variable and independent variables. The research design in this study uses a structural equation model. PLS is suitable for the analysis that concern with testing the research using structural model (Hair et al., 2019). This study used SmartPLS to analyze data. So far, SmartPLS is the most advanced PLS-SEM software used by the researchers (Henseler, 2017).

RESULT AND DISCUSSION

This research uses primary data obtained by distributing the online questionnaire through google form. In the initial stage, online questionnaires were distributed to 150 respondents. After analyzing the questionnaire again, there were several respondents' answers that were incomplete and did not meet the criteria. So that the final results of the questionnaire that can be processed are 102. The questionnaire consists of 40 items which are then divided into 8 sections according to the constructs. This research uses a purposive sampling method with certain criteria, namely that only respondents who have taken AIS courses and must have played MonsoonSIM as a learning tool.

Table 1. Characteristic of the respondents

Description		Frequency	%
Gender	Male	36	35.6
	Female	66	65.4
Age	19-20	31	32.3
	21-23	69	67.7
GPA	3.50-4.00	63	61.5
	3.00-3.50	37	38.5
	Below 3.00	0	0
AIS Grade	A	23	22.4
	A-	31	30.3
	A/B	30	29.4
	B+	19	18.4
	Below B	0	0
TOTAL		**102**	**100%**

Source: Authors' data processed with SmartPLS (2024)

Descriptive Statistic Analysis

The results of descriptive statistic tests can be shown below:

Table 2. Descriptive Analysis

Variable	Min.	Max.	Mean	Std. Deviation
Perceived Usefulness of MonsoonSIM	1	5	4.3	0.638
Perceived Ease of Use of MonsoonSIM	2	5	3.8	0.833
Perceived Enjoyment of MonsoonSIM	2	5	4.2	0.803
Facilitating Condition of MonsoonSIM	1	5	3.6	0.692
Social Influence of MonsoonSIM	1	5	3.8	0.924
Students' AIS competence	1	5	3.7	0.865
Learning Outcome	2	5	4.1	0.766

Source: Authors' data processed with SmartPLS (2024)

Table 3. Research Model Fitness

Discrepancy	Value	Criterion
SRMR	0.075	0.08
d_{ULS}	10.490	d_{UL} <95% bootstrap quantile
d_G	94.818	d_G <95% bootstrap quantile (HI$_{95}$ of d_G) Approximate model fit (estimated model) SRMR<0.08

Source: Authors' data processed with SmartPLS (2024)

From **Table 3** it can be showed that SRMR value is 0,075. SMSR is a measure to determine the goodness of the research model. Henseler et al. (2014) introduced the SRMR as a goodness of fit measure for PLS-SEM that can be used to detect model misspecification. A research model is considered has a goodness of fit model if the SMSR value is less than 0.10 or of 0.08 (Benitez et

al., 2020; Hu & Bentler, 1999). **Table 3** showed that SRMR value in this study is 0,075 or below 0.08 which means this research has a good of fit model.

Validity and Reliability Analysis

The validity of instrument is analyzed based on Loading Factor and the value of Average Variance Extracted (AVE). Loading Factor measure correlation between each item or indicator toward its construct. AVE measure the variation of the item can be explained by the construct. Loading factor should be greater than 0,7, whereas the standard value of AVE should above 0,5. Even though the loading factor is less than 0,7 but higher than 0,5 there is no need to remove the item as long as loading value is still greater than AVE score.

Table 4. Validity and Reliability

Variable	Indicator Code	Loading	AVE	Cronbach's Alpha	Composite Reliability
Perceived Usefulness	PU1	0,874	0,684	0,769	0,866
	PU2	0,861			
	PU3	0,820			
Perceived ease of use	PEOU1	0,800	0,643	0,812	0,877
	PEOU2	0,882			
	PEOU3	0,858			
	PEOU4	0,882			
Perceived enjoyment	PE1	0,713	0,714	0,805	0,884
	PE2	0,829			
	PE3	0,856			
	PE4	0,802			
Facilitating Condition	FAC1	0,797	0,726	0,812	0,888
	FAC2	0,878			
	FAC3	0,803			
	FAC4	0,935			
Social Influence	SI1	0,802	0,653	0,823	0,882
	SI2	0,937			
	SI3	0,904			
AIS Competency	SAC1	0,794	0,645	0,908	0,927
	SAC2	0,790			
	SAC3	0,850			
	SAC4	0,810			
	SAC5	0,764			
	SAC6	0,804			
	SAC7	0,748			
	SAC8	0,797			
	SAC9	0,823			
Perceived Learning Outcome	PLO1	0,721	0,851	0,913	0,945
	PLO2	0,796			
	PLO3	0,798			
	PLO4	0,727			
	PLO5	0,764			
	PLO6	0,745			
	PLO7	0,757			

Source: Authors' data processed with SmartPLS (2024)

The AVE value can indicate the discriminant validity of research. The standard score for AVE should be higher than 0.5. Discriminant validity is fulfilled if the AVE root value is greater than

the correlation value between the construct and other constructs in the model. The AVE value and it can be seen from **Table 4**. It can be seen that the AVE value respectively are Perceived Usefulness of 0.684, Perceived Ease of Use of 0.643, Perceived Enjoyment of 0.714, Facilitating Condition of 0.726, Social Influence of 0.653, Students' AIS Competence of 0.645, and Students' Learning Outcome of 0,851. Because the AVE values of all variables are greater than 0,5 It can be inferred that discriminant validity is not an issue in this study. To test the reliability of data, this study used Cronbach's alpha and composite reliability. Based on **Table 4** it can be shows that all variables of this study have Cronbach alpha and composite reliability more than 0,7. Therefore, it can be concluded this data is reliable.

Multicollinearity Test

Variance Inflation Factor (VIF) can be used as the indication of the existence of common method bias. If the value of VIF is greater than 3,3 it is the indication of common method bias (Kock, 2015). Common method bias happens if the independent and dependent variable have the same response method. **Table 5** showed that VIF inner value of each of the variables are below 3,3. The VIF value range from 1.000-2.693. It can be concluded that the independent variables have not correlated each other in this model.

Table 5. Multicollinearity

Variable	VIF
Perceived usefulness	2.693
Perceived ease of use	1.276
Perceived enjoyment	2.611
Facilitating condition	1.893
Social influence	1.526
Students' AIS competence	1.000

Source: Authors' data processed with SmartPLS (2024)

Inner Model Analysis

Inner model analysis is used to determine how much endogenous variables are influenced by exogenous variables in a structural model. The value of R-square can be used to indicate how much endogenous variable is influence by its exogenous variables. Table 6 showed that the variable of perceived usefulness, perceived ease of use, perceived enjoyment, social influence, and facilitating condition has R square value of 0.516. It can be interpreted that 51% of the Students' AIS Competence can be explained by perceived usefulness, perceived ease of use, perceived enjoyment, social influence, and facilitating condition. Likewise, students' AIS competency can explain 55% of the perceived learning outcome variable.

Table 6. R Square & Adjusted R Square

Variable	R Square	Adjusted R Square
AIS competency	0.516	0.679
Perceived learning outcome	0.550	0,543

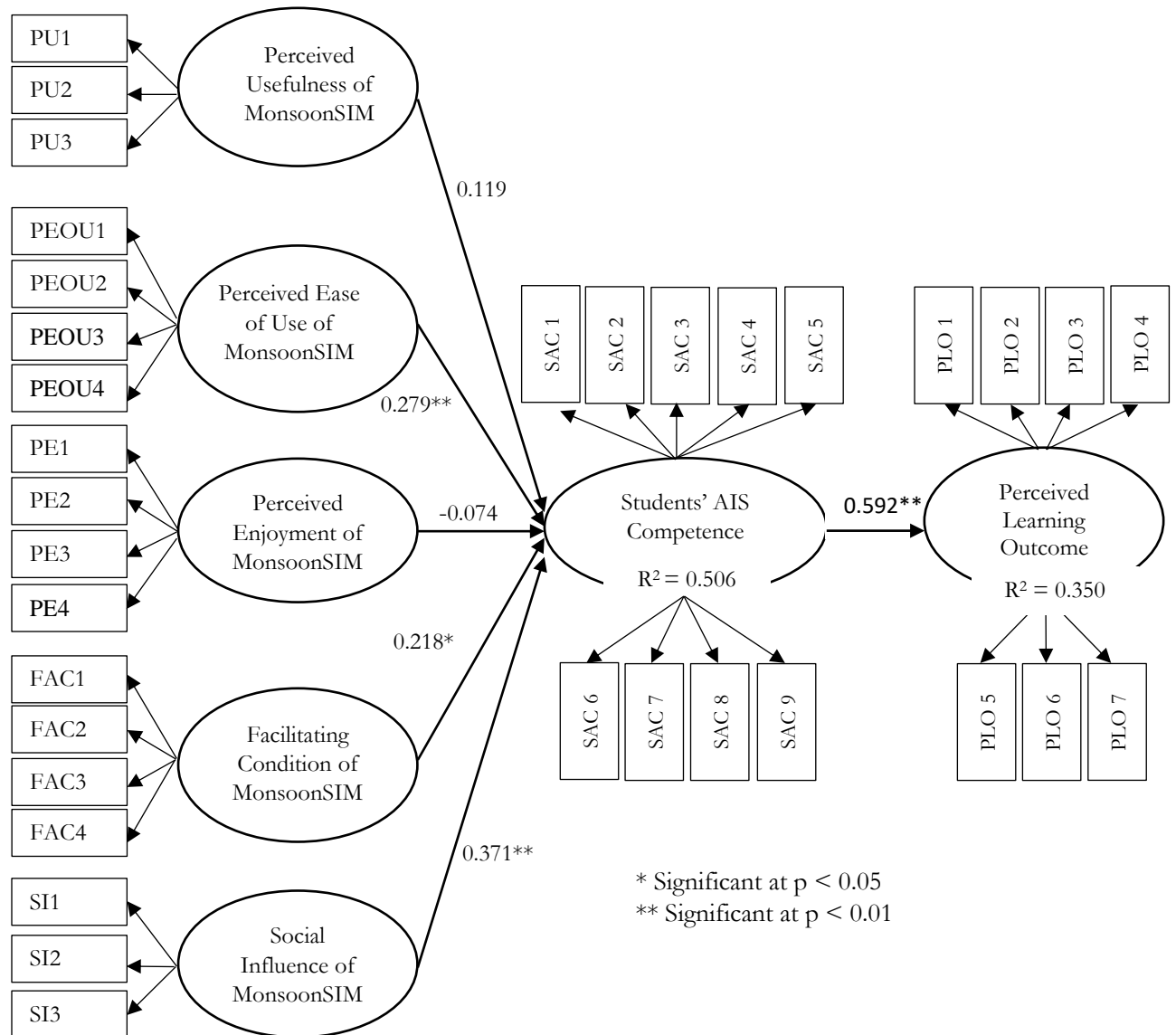Source: Authors' data processed with SmartPLS (2024)

Figure 2. Path Coefficient

Based on **Table 7** shows that path coefficient for the hypothesized relationships has a range from 0.000 to 0.042. Most of the relationships tested have significant value less than 0,05 except for the Perceived Usefulness and Perceived Enjoyment. The path coefficient for each relationship can be shown in the following table:

Table 7. Inner weights output

Relationship	Original sample	T Stat	P Value
Perceived Usefulness of MonsoonSIM → AIS competency (H1)	0,119	1.025	0.306
Perceived Ease of Use of MonsoonSIM → AIS competency (H2)	0,279	3.113	0.002
Perceived Enjoyment of MonsoonSIM → AIS competency (H3)	-0,074	0.667	0.505
Social Influence on using MonsoonSIM → AIS competency (H4)	0,218	2.037	0.042
Facilitating Condition on using MonsoonSIM → AIS competency (H5)	0,371	3.121	0.002
Students' AIS competency → Perceived Learning Outcome (H6)	0,592	9.547	0.000

Source: Authors' data processed with SmartPLS (2024)

Table 7 showed that perceived usefulness of MonsoonSIM did not affect significantly on students' AIS competency (β = 0,119; t = 1,025; P value = 0,306). It can be concluded that the hypothesis 1 is not supported. It seems that students are not yet convinced about the benefits of monsoons in the real world. This study found that there is significant influence of perceived ease of use of MonsoonSIM on students' AIS competency (β = 0,279; t = 3,113; P value = 0,002). Students who perceive MonsoonSIM easy tend to have better AIS competency. Based on this result hypothesis 2 is supported. This study found that perceived enjoyment of MonsoonSIM did not affect significantly on students' AIS competence (β = -0,074; t = 0,667; P value = 0,505). Even though MonsoonSIM is a business simulation game, MonsoonSIM is certainly not the same as games that provide entertainment. MonsoonSIM is more of an educational game in the business field. Based on this result hypothesis 3 is not supported. We found that social influence has a significant effect on students' AIS competence (β = 0,218; t = 2,037; P value = 0,042). This is quite reasonable because MonsoonSIM is a business simulation game that is played in groups. The role of group members is important in influencing team performance. It can be concluded Hypothesis 4 is supported. Facilitating condition also has a positive and significant effect on students' AIS competence (β = 0,371; t = 3,121; P value = 0,002). MonsoonSIM has adequate technical support that helps users use this tool well. Apart from that, internet network support also affects system performance. The better the supporting facilities, the better the performance. Based on that result, Hypothesis 5 is supported. Then finally students' AIS competence affects significantly on perceived learning outcome (β = 0,592; t = 9,547; P value = 0,000). Students who have higher AIS competency will have better learning outcomes. Thus, hypothesis 6 is supported.

This study predicts Perceived Usefulness of MonsoonSIM will positively affect students' AIS competency. However, the statistical test does not support this hypothesis. This result is different with the previous studies conducted by Dharmastuti et al. (2021) and Shafudin et al. (2018). The reason is that users are still new to using MonsoonSIM so they don't know the real benefits of

using MonsoonSIM (Bajis et al., 2019). Students are not sure whether what they are doing in playing a business simulation is really in accordance with business practices.

This research shows that Perceived Ease of Use of MonsoonSIM has a positive and significant effect on students' AIS competency. Davis (1989) states that Perceived Ease of Use is one of the main factors that affect the intention to use new technology. The next question is whether after adopting the new technology, namely MonsoonSIM, will student competence also increase. The results of this research confirm that the use of new learning technology, namely MonsoonSIM, has been proven to be able to increase student competency in AIS courses. The result of this study is also consistent with previous study conducted by Shafudin et al. (2018) at UTM and Dharmastuti et al. (2021) at Atmajaya University. They found that game-based learning method could increase enthusiasm and participation. The effectiveness of employing business simulation game as a learning tool is not only in offline class only but also in online asynchronous class (Hong et al., 2020). Therefore, gamification learning can be implemented for both offline and online class.

This study does not find any significant effect of Perceived Enjoyment of MonsoonSIM toward students' AIS competency. This result is not supporting the finding of Shafudin et al. (2018) and Dharmastuti et al. (2021), but consistent with a study conducted by Hussein (2018). Hussein (2018) found that students' perceived enjoyment of using computers was not a significant factor in influencing them to participate in e-learning.

Perceive enjoyment is not always the main factor to use new technology that will affect performance. Ryan & Deci (2000) show that individual will show enthusiasm and desire to learn and explore, and do not need extrinsic incentives, such as fun and enjoyment. For example, someone uses the internet for studying or learning activities, where the level of enjoyment of using the internet for learning may be different from using the internet for entertainment or making online transactions (Punnoose, 2012). People who are used to surfing the internet in their daily lives may consider it a routine activity that no longer excites them. Thus, the intensity and routine of technology use may reduce the level of enjoyment in using the technology.

Facilitating conditions of MonsoonSIM improve students' AIS competency. Students consider MonsoonSIM's facilitating conditions to be sufficient so that it has a positive effect on their academic performance in AIS courses. Facilitating conditions will not have a significant effect if the user already has sufficient equipment and knowledge to operate the new technology or information system without requiring further technical assistance. Utomo et al. (2021) showed that facilitating condition has a positive impact on the user behavior in using new technology. Adoption of new technology is driven by the availability of supporting resources and facilities such as internet, software, and hardware support (Alam et al., 2021).

This study found that Social Influence in using MonsoonSIM has a significant effect on students' AIS competency. MonsoonSIM is a type of game that is played in groups. Therefore, social influence, namely the influence of group members or other groups, will influence student performance, both individual and group performance. In the group game-based learning model, social interaction is a very important factor (Vartiainen & Ruohomäki, 1994). This finding is

consistent with the study conducted by Im et al. (2011) that found a positive association between social influence and student competencies.

Furthermore, this research found that students'AIS competency has a positive impact on perceived learning outcome. It can be inferred that after using MonsoonSIM, the competency of student in AIS increase and eventually improve their learning outcome. This result confirms the empirical evidence showed by Dharmastuti et al. (2021) that also found that the students' business competency affects positively on their learning outcome. Student competencies will improve the achievement and gaining learning objectives (Levant et al., 2016).

CONCLUSION

This study explored the effectiveness of using MonsoonSIM as gamification learning method to improve student's competency in AIS and learning outcome. Based on the hypothesis testing using SEM-PLS model, it can be concluded that Perceived Ease of Use, Social Influence, and Facilitating Condition of MonsoonSIM significantly affect students' competency in AIS course. Unfortunately, Perceived Usefulness and Perceived Enjoyment of MonsoonSIM do not affect significantly on students' AIS competency. This study also found that student's competency in AIS has a positive impact on learning outcome. Based on this result, this study concludes that using MonsoonSIM as a tool to support AIS learning is relevant and provides a positive benefit to improve student academic performance and competency. Because this research was conducted using a survey approach, there are some inherent biases, so it is necessary to be careful in interpreting the findings of this research. It is hoped that future research can expand the research sample or use experimental research methods so that it can provide richer evidence. Accounting education institution should consider the use of experiential learning such as MonsoonSIM or other business simulation platform to enhance the students' understanding in AIS course.

REFERENCE

Alam, F., Yang, Q., Bhutto, M. Y., & Akhtar, N. (2021). The Influence of E-Learning and Emotional Intelligence on Psychological Intentions: Study of Stranded Pakistani Students. *Frontiers in Psychology*, *12*. https://doi.org/10.3389/fpsyg.2021.715700

Bajis, D., Chaar, B., Basheti, I. A., & Moles, R. (2019). Pharmacy students' medication history taking competency: Simulation and feedback learning intervention. *Currents in Pharmacy Teaching and Learning*, *11*(10), 1002–1015. https://doi.org/https://doi.org/10.1016/j.cptl.2019.06.007

Benitez, J., Henseler, J., Castillo, A., & Schuberth, F. (2020). How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research. *Information & Management*, *57*(2), 103168. https://doi.org/https://doi.org/10.1016/j.im.2019.05.003

Cronan, T. P., & Douglas, D. E. (2012). A Student ERP Simulation Game: A Longitudinal Study. *Journal of Computer Information Systems*, *53*(1), 3–13. https://doi.org/10.1080/08874417.2012.11645591

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly: Management Information Systems*, *13*(3), 319–339. https://doi.org/10.2307/249008

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and Intrinsic Motivation to Use Computers in the Workplace1. *Journal of Applied Social Psychology*, *22*(14), 1111–1132. https://doi.org/https://doi.org/10.1111/j.1559-1816.1992.tb00945.x

Dharmastuti, C. F., Darmoyo, S., Gunawan, R. A., Duka, M. N., & others. (2021). Business simulation, student competency, and learning outcomes. *Jurnal Manajemen*, *25*(1), 160–174. https://doi.org/https://doi.org/10.24912/jm.v25i1.709

Faria, A. J. (2006). History, current usage, and learning from marketing simulation games: a detailed literature review. *Proceedings of the Marketing Management Association*, *139*, 138–139.

Faria, A. J., Hutchinson, D., Wellington, W. J., & Gold, S. (2008). Developments in Business Gaming: A Review of the Past 40 Years. *Simulation & Gaming*, *40*(4), 464–487. https://doi.org/10.1177/1046878108327585

Guizi, L., Zhongdi, L., & others. (2021). Innovative model of accounting teaching in the era of digital intelligence. *Frontiers in Educational Research*, *4*(12).

Gulin, D., Hladika, M., & Valenta, I. (2019). Digitalization and the Challenges for the Accounting Profession. *ENTRENOVA-ENTerprise REsearch InNOVAtion*, *5*(1), 428–437.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, *31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Haleem, A. H., & Kevin, L.L.T. (2018). Impact of user competency on accounting information system success: Banking sector in Sri Lanka. *International Journal of Economics and Financial Issues 8(6)*, 167-175.

Harter, S. (1982). The Perceived Competence Scale for Children. *Child Development*, *53*(1), 87–97. https://doi.org/10.2307/1129640.

Harter, S. (1988). Self-perception profile for adolescents. *Gifted Child Quarterly*.

Henseler, J. (2017). *Partial Least Squares Path Modeling BT - Advanced Methods for Modeling Markets* (P. S. H. Leeflang, J. E. Wieringa, T. H. A. Bijmolt, & K. H. Pauwels, Eds.; pp. 361–381). Springer International Publishing. https://doi.org/10.1007/978-3-319-53469-5_12

Henseler, J., Dijkstra, T. K., Sarstedt, M., Ringle, C. M., Diamantopoulos, A., Straub, D. W., Ketchen Jr, D. J., Hair, J. F., Hult, G. T. M., & Calantone, R. J. (2014). Common beliefs and reality about PLS: Comments on Rönkkö and Evermann (2013). *Organizational Research Methods*, *17*(2), 182–209.

Hoffmann, T. (1999). The meanings of competency. *Journal of European Industrial Training*, *23*(6), 275–286. https://doi.org/10.1108/03090599910284650

Hong, J.-C., Hwang, M.-Y., Liu, M.-C., Tsai, C.-R., & Tai, K.-H. (2020). Metacognition in covariation reasoning relevant to performance achievement mediated by experiential values in a simulation game. *Educational Technology Research and Development*, *68*(3), 929–948. https://doi.org/10.1007/s11423-019-09711-1

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Hussein, Z. (2018). Subjective norm and perceived enjoyment among students in influencing the intention to use e-learning. *International Journal of Civil Engineering and Technology (IJCIET)*, *9*(13), 852–858.

Hwang, M. (2019). ERP Simulation Games in Asynchronous Online Classes. *E-Journal of Business Education and Scholarship of Teaching*, *13*(3), 37–45.

Im, I., Hong, S., & Kang, M. S. (2011). An international comparison of technology adoption: Testing the UTAUT model. *Information & Management*, *48*(1), 1–8. https://doi.org/https://doi.org/10.1016/j.im.2010.09.001

Jonathan, L. Y., & Laik, M. N. (2019). Using Experiential Learning Theory to Improve Teaching and Learning in Higher Education. *European Journal of Social Science Education and Research*, *6*(1 SE-Articles), 15–22. https://doi.org/10.26417/ejser.v6i1.p123-132

Kharbat, F. F., & Muqattash, R. (2020). Accounting information system courses: Developing a hybrid syllabus in the era of digitization. *The International Journal of Digital Accounting Research*, *20*(26), 135–167.

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of E-Collaboration (Ijec)*, *11*(4), 1–10.

Kolb, D. A., Boyatzis, R. E., & Mainemelis, C. (2014). Experiential learning theory: Previous research and new directions. In *Perspectives on thinking, learning, and cognitive styles* (pp. 227–248). Routledge.

Laurischkat, K., & Viertelhausen, A. (2017). Business Model Gaming: A Game-Based Methodology for E-Mobility Business Model Innovation. *Procedia CIRP*, *64*, 115–120. https://doi.org/https://doi.org/10.1016/j.procir.2017.03.051

Levant, Y., Coulmont, M., & Sandu, R. (2016). Business simulation as an active learning activity for developing soft skills. *Accounting Education*, *25*(4), 368–395. https://doi.org/10.1080/09639284.2016.1191272

Lewis, C. C., Fretwell, C. E., Ryan, J., & Parham, J. B. (2013). Faculty use of established and emerging technologies in higher education: A unified theory of acceptance and use of technology perspective. *International Journal of Higher Education*, *2*(2), 22–34.

Liu, C.-C., Cheng, Y.-B., & Huang, C.-W. (2011). The effect of simulation games on the learning of computational problem solving. *Computers & Education*, *57*(3), 1907–1918. https://doi.org/https://doi.org/10.1016/j.compedu.2011.04.002

Marikyan, D. & Papagiannidis, S. (2023). *Unified Theory of Acceptance and Use of Technology: A review.* In S. Papagiannidis (Ed), TheoryHub Book. Available at https://open.ncl.ac.uk

Moradi, M., Tarighi, H., Hosseinipour, R., & Saravani, M. (2020). Factors influencing the learning of accounting information systems (AIS). *Journal of Economic and Administrative Sciences*, *36*(3), 226–245. https://doi.org/10.1108/JEAS-02-2019-0014

Peterková, J., Repaská, Z., & Prachařová, L. (2022). Best Practice of Using Digital Business Simulation Games in Business Education. *Sustainability*, *14*(15). https://doi.org/10.3390/su14158987

Powell, L., Lambert, D., McGuigan, N., Prasad, A., & Lin, J. (2020). Fostering creativity in audit through co-created role-play. *Accounting Education*, 29:6, 605-639, DOI: 10.1080/09639284.2020.1838929

Punnoose, A. C. (2012). Determinants of intention to use eLearning based on the technology acceptance model. *Journal of Information Technology Education: Research*, *11*(1), 301–337.

Romney, M. B., Steinbart, P. J., Summers, S. L., & Wood, D. A. (2020). *Accounting Information Systems, 15th Global Edition* (15th ed.). Pearson Education.

Ruohomäki, V. (1995). *Viewpoints on learning and education with simulation games BT - Simulation Games and Learning in Production Management* (J. O. Riis, Ed.; pp. 13–25). Springer US. https://doi.org/10.1007/978-1-5041-2870-4_2

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology*, *25*(1), 54–67. https://doi.org/https://doi.org/10.1006/ceps.1999.1020

Sathe, R., & Yu, W. (2021). Experiential learning in the classroom: An accounting cycle simulation project. *Journal of Higher Education Theory and Practice*, *21*(7), 193–210.

Shafudin, M. Y., Chin, F. G., Raihanatul, Z. M., Mohd Yatim, S., Goh, C. F., & Mohamad, R. Z. (2018). Factors Influencing Use of Monsoonsim Business Simulation by UTM Undergraduate Students. *International Journal of Learning and Development*, *8*(2), 61. https://doi.org/10.5296/ijld.v8i2.13073

Shin, S., & Lee, W. (2014). The Effects of Technology Readiness and Technology Acceptance On NFC Mobile Payment Services In Korea. *Applied Business Research*, *30*(6), 1615–1626.

Silva, R., Rodrigues, R., & Leal, C. (2020). Social factors influence on accounting students attitude to use games based learning. In *The Role of Gamification in Software Development Lifecycle*. IntechOpen.

Soudani, S. N. (2012). The Usefulness of an Accounting Information System for Effective Organizational Performance. *International Journal of Economics and Finance*, *4*(5), 136–145. https://doi.org/10.5539/ijef.v4n5p136

Srimaryani, Yuliyanto, R., & Andriyati, R. (2023). Sharpening accounting skill with games: A literature review on game-based accounting learning. *Randwick International of Social Sciences (RISS) Journal 4(3), 687-698. https://www.randwickresearch.com/index.php/rissj.*

Stefanou, C. J. (2006). The complexity and the research area of AIS. *Journal of Enterprise Information Management*, *19*(1), 9–12. https://doi.org/10.1108/17410390610636841

Susanti, A. D., Hananto, S. T., & Murni, S. (2020). The Integration of SAP Software in Learning Accounting Information Systems to Face Industrial Revolution 4.0. *Assets: Jurnal Akuntansi Dan Pendidikan*, *9*(1), 72–82.

Susanto, S., Utomo, P., & Sudiyono, K. A. (2021). Analysis of Factors that Affecting the Acceptance of the Use of Digital Form Mobile Application At Pt. Abc Using Tam Dan Utaut Theoretical model. *ICEBE 2020: Proceedings of the First International Conference of Economics, Business \& Entrepreneurship, ICEBE 2020, 1st October 2020, Tangerang, Indonesia*, 476.

Tao, Y.-H., Cheng, C.-J., & Sun, S.-Y. (2009). What influences college students to continue using business simulation games? The Taiwan experience. *Computers & Education*, *53*(3), 929–939. https://doi.org/https://doi.org/10.1016/j.compedu.2009.05.009

Thompson, R. L., Higgins, C. A., & Howell, J. M. (1991). Personal Computing: Toward a Conceptual Model of Utilization. *MIS Quarterly*, *15*(1), 125–143. https://doi.org/10.2307/249443

Utomo, P., Kurniasari, F., & Purnamaningsih, P. (2021). The effects of performance expectancy, effort expectancy, facilitating condition, and habit on behavior intention in using mobile healthcare application. *International Journal of Community Service \& Engagement*, *2*(4), 183–197.

Vartiainen, M., & Ruohomäki, V. (1994). Simulation games as tools for work development, and their psychological bases. In *Human factors in organizational design and management* (pp. 73–78). Elsevier.

Vatanasakdakul, S., & Aoun, C. (2011). Why don't accounting students like AIS? *International Journal of Educational Management*, *25*(4), 328–342. https://doi.org/10.1108/09513541111136621

Venkatesh, V., & Davis, F. D. (2000). Theoretical extension of the Technology Acceptance Model: Four longitudinal field studies. *Management Science*, *46*(2), 186–204. https://doi.org/10.1287/mnsc.46.2.186.11926

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, *27*(3), 425–478. https://doi.org/10.1016/j.inoche.2016.03.015

Venkatesh, V., Thong, J. Y. L., & Xu, X. (2012). Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology. *MIS Quarterly*, *36*(1), 157–178. https://doi.org/10.2307/41410412

Vos, L., & Brennan, R. (2010). Marketing simulation games: student and lecturer perspectives. *Marketing Intelligence & Planning*, *28*(7), 882–897. https://doi.org/10.1108/02634501011086472

Wrenn, J., & Wrenn, B. (2009). Enhancing learning by integrating theory and practice. *International Journal of Teaching and Learning in Higher Education*, *21*(2), 258–265.

Yoshikuni, A. C., Dwivedi, R., Dultra-de-Lima, R. G., Parisi, C., & Oyadomari, J. C. T. (2023). Role of Emerging Technologies in Accounting Information Systems for Achieving Strategic Flexibility through Decision-Making Performance: An Exploratory Study Based on North American and South American Firms. *Global Journal of Flexible Systems Management*, 1–20.