

Success Measure of MonsoonSIM for Accounting Students: DeLone and McLean Model

by Maulidyati Aisyah

Submission date: 29-Aug-2022 02:20PM (UTC+0700)

Submission ID: 1888688492

File name: ICARE2021_Full_Paper_2021107.docx (66.22K)

Word count: 1965

Character count: 10554

Success Measure of MonsoonSIM for Accounting Students: DeLone and McLean Model

Maulidyati Aisyah^{*a}, Ivan Rukma Arafat^b

^aUniversitas Islam Indonesia, Indonesia

^bUniversitas Islam Indonesia, Indonesia

Abstract

MonsoonSIM is an award-winning business simulation and gamification education platform. It is a unique and fun business simulation game. Students will learn how to compete with each other to manage and become the best virtual company. DeLone and McLean success model employs variables: system quality, information quality, service quality, usage, user satisfaction, and net benefits. The purpose of this study was to determine the effect of these variables on the use of MonsoonSIM. Respondents were 131 Accounting students at the Islamic University of Indonesia. The primary data used was obtained by distributing online questionnaires. Data was analyzed using Structural Equation Model. The results of this study indicate that the quality of service and the quality of information quality have a significant effect on user satisfaction, the quality of information has a significant effect on use, use and user satisfaction have a significant effect on net benefits. While the quality of the system does not affect the use and user satisfaction, and the quality of service does not affect the use of MonsoonSIM.

Keywords: system quality; information quality; service quality; usage; user satisfaction

1. INTRODUCTION

Learning with gamification is an effective and motivating thing in overcoming the boredom of today's students in the world of education (Pradana, Bachtiar, and Priyambadha 2018). The term gamification emerged from Nick Pelling in 2002 which is a learning approach using elements in games or video games with the aim of motivating students or students in the learning process and maximizing feelings of enjoyment and engagement with the learning process. In addition, it can also be used to capture things of interest so that it inspires them to continue learning (Jusuf 2016). Gamification can also be done to provide education and training like a company because it consists of players, thinking activities, abstract challenges, rules, interactivity, feedback, measured results, and emotional reactions (Sambung, Sihkabuden, and Ulfa 2018). Several researchers have also shown that gamification can improve student learning environments (Rogers, Singhal, and Quinlan 2019). According to Sakamoto *et al.* (2017), the benefits and values generated from gamification are informative value, empathetic value, persuasive value, economic value, and ideological value that can directly improve student learning.

Gamification can be done in various ways. One of them is using MonsoonSIM which is a learning development gamification platform from ERP (enterprise resource planning). Through this business simulation game, students will learn and unknowingly compete with each other to manage and become the best virtual company. This platform has been used in business education since 2013 and has hosted many competitions both at national and international levels (Monsoon Academy 2020). In MonsoonSIM, participants can manage a company including resources, perform long-term analysis for the company, and analyse market and competitor needs (Ariyani, Fatimah, and Ariesta 2020).

Accounting Undergraduate Program, Faculty of Business and Economics, Universitas Islam Indonesia has implemented learning using ERP software. Previously, students were required to have taken accounting information systems courses. The use of MonsoonSIM as a learning enrichment in the Accounting Study Program is certainly in line with the designed curriculum structure. This is evident from the success of students from the Accounting Study Program at the Islamic University of Indonesia in winning various MonsoonSIM competitions at national and international levels.

The use of the DeLone and McLean models, especially in e-learning environments, is still limited. Research by Dorobat (2014) and Tariq, Ishak and Mohd. Nafi (2018) is still limited to the theoretical study that produced the DeLone and McLean – extensions model. However, this model is still a proposed model and has not been proven empirically.

Research by Awang, *et. al.* (2018) regarding the Virtual Learning Environment (VLE) concludes that all variables in the Delone and Mclean models have a positive and significant effect.

Research Seta, *et. al.* (2018) combines the DeLone and McLean models and the e-learning success model. The results show both the use and satisfaction of the e-learning system have an impact for individual performance. This research also found that educational system quality and technical quality are the main factors that encourage user satisfaction with e-learning system, while the use of e-learning system that is influenced by content & information quality, also user perceived satisfaction for e-learning system. Pringgandani, *et. al.*(2018) studies mentioned that it was not able to explain the cause of success, because the variables of service quality, system quality and quality of information have no significant effect on the intentions of use and user satisfaction.

Based on the above explanations, the use of DeLone and McLean Success Model is still required in the e-learning environment especially for higher degree education. Thus, this study aim to measure MonsoonSIM implementation use DeLone and McLean Success Model in Accounting Undergraduate Program, FBE UII.

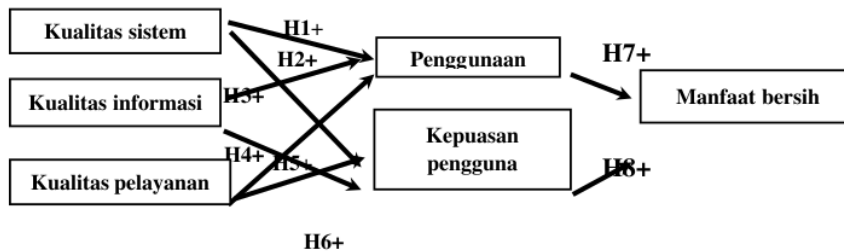


Figure 1. Research Framework

1.1 Research Hypothesis

- H1: Systems quality of MonsoonSIM has a positive effect on the use of MonsoonSIM
- H2: Systems quality of MonsoonSIM has a positive effect on the MonsoonSIM user satisfaction
- H3: Information quality of MonsoonSIM has a positive effect on the use of MonsoonSIM
- H4: Information quality of MonsoonSIM has a positive effect on the MonsoonSIM user satisfaction
- H5: Service quality of MonsoonSIM has a positive effect on the use of MonsoonSIM
- H6: Service quality of MonsoonSIM has a positive effect on the MonsoonSIM user satisfaction
- H7: Use of MonsoonSIM has a positive effect on its Net Benefit

H8: MonsoonSIM user satisfaction has a positive effect on its Net Benefit

2. METHODOLOGY

The population used in this study were all students of the accounting department FBE UII. The specific criteria for the sample used by researchers were students who had participated in MonsoonSIM activities. The number of students who have participated in MonsoonSIM activities were 200 people. The minimum number of samples needed in this study is 10 times the largest number of measurement indicators in one of the variables (Hair, *et.al.*, 2017). Thus, the minimum number of samples needed is 110.

The following is table 1 which shows the number of indicators for each variable adopted in the questionnaire used and their references.

Table 1. Number of indicators and references

Variable Name	Variable Type	Number of Indicators	References
Systems Quality	Independent	11	Saputro, Budiyanto, dan Santoso (2016), Hudin dan Riana (2016), Agustina dan Sutinah (2019)
Information Quality	Independent	6	Saputro, Budiyanto, dan Santoso (2016), Hudin dan Riana (2016), Agustina dan Sutinah (2019)
Service Quality	Independent	5	Saputro, Budiyanto, dan Santoso (2016), Hudin dan Riana (2016), Agustina dan Sutinah (2019)
Use	Intervening	5	Saputro, Budiyanto, dan Santoso (2016), Hudin dan Riana (2016), Agustina dan Sutinah (2019)
User Satisfaction	Intervening	6	Saputro, Budiyanto, dan Santoso (2016), Hudin dan Riana (2016), Agustina dan Sutinah (2019)
Net Benefit	Dependent	5	Saputro, Budiyanto, dan Santoso (2016), Hudin dan Riana (2016), Agustina dan Sutinah (2019)

Source: research method

The research model can be written in the following equation :

$$Z_1 = a_1 + b_1 X_1 + b_2 X_2 + b_3 X_3 + e_1 \quad (1)$$

$$Z_2 = a_2 + b_4 X_4 + b_5 X_5 + b_6 X_6 + e_2 \quad (2)$$

$$Y = a_3 + b_7 Z_1 + b_8 Z_2 + e_3 \quad (3)$$

The data analysis method used in this study is the Partial Least Square (PLS) method. The stages of analysis using the PLS method according to Hair, *et.al.* (2017) are: 1) Analysis of path diagrams to interpret PLS software output, 2) Analysis of measurement models (outer models or also known as measurement models) to evaluate the relationship between construct variables and indicators or manifest variables, 3) Structural analysis (inner model) to evaluate the estimated results of the path coefficient parameter and its level of significance.

3. RESULTS

3.1 The outer model

3.1.1 Convergent validity

The results show that all items match each of the factors and have a loading factor value > 0.5, as shown in the following table:

Table 2. Convergent validity

Variable	Item Code	Loading Factor	AVE
Systems Quality (KS)	KS1	0.686	0.590
	KS2	0.767	
	KS3	0.748	
	KS4	0.611	
	KS5	0.552	
	KS6	0.631	
	KS7	0.720	
	KS8	0.642	
	KS9	0.696	
	KS10	0.639	
	KS11	0.578	
Information Quality (KI)	KI1	0.739	0.539
	KI2	0.780	
	KI3	0.701	
	KI4	0.801	
	KI5	0.837	
	KI6	0.743	
Service Quality (KP)	KP1	0.735	0.532
	KP2	0.648	
	KP3	0.769	
	KP4	0.827	
	KP5	0.676	
Use (P)	P1	0.745	0.733
	P2	0.675	
	P3	0.849	
	P4	0.816	
	P5	0.649	
User Satisfaction (KPe)	KPe1	0.854	0.564
	KPe2	0.893	
	KPe3	0.867	
	KPe4	0.827	
	KPe5	0.845	
	KPe6	0.848	
Net Benefit (MB)	MB1	0.782	0.665
	MB2	0.811	
	MB3	0.814	
	MB4	0.856	
	MB5	0.811	

Source: Research Result, 2020

3.1.2 Discriminant Validity and Reliability Test

Table 3. Latent Variable Correlations and Reliability Test

	KPe	KI	KP	KS	MB	P	Composite Reliability	Cronbach Alpha	Criteria

KS	0.734	0.657	0.725	0.831			0.892	0.866	0,7	Reliable
KI	0.766	0.768					0.896	0.861	0,7	Reliable
KP	0.691	0.715	0.734				0.853	0.787	0,7	Reliable
P	0.666	0.701	0.597	0.624	0.751	0.763	0.865	0.804	0,7	Reliable
KPe	0.856						0.943	0.927	0,7	Reliable
MB	0.764	0.774	0.636	0.663	0.815		0.908	0.874	0,7	Reliable

Source: Research Result, 2020

Based on Table 3 it can be concluded that the value of the square root of AVE for all constructs is greater than the correlation between constructs and other constructs, so that all variables have high and valid discriminant validity. It is also known that the composite reliability and Cronbach alpha values of each research variable all have a value of > 0.7. Thus, it can be concluded that all variables have a high level of reliability.

3.2 The Inner Model

3.1.1 Goodness-fit Model

Table 4. R- Square

Construct	R Square
User Satisfaction (KPe)	0.641
Use (P)	0.511
Net Benefit (MB)	0.700

Source: Research Results, 2020.

Table 4 shows the R-Square value on User satisfaction, Use, and Net benefit. This shows that the values are among 0,33 to 0,66 and qualified as moderate (Ghozali dan Latan, 2015).

3.2.2 Hypothesis Testing and Discussion

Hypothesis testing in the study was carried out by looking at the t-statistical value and the p-value. The hypothesis is supported if the t-statistical value > t-table and the p-value < 0.05. The results of data processing hypothesis testing can be in the following table:

Table 5. Results of Path Coefficients

Hypothesis	Path	Original Sample	T Statistics	P Values	
H1	KS → P	0.057	0.42	0.675	Not Supported
H2	KS → KPe	0.218	1.524	0.128	Not Supported
H3	KI → P	0.525	3.764	0.000	Supported
H4	KI → KPe	0.417	2.793	0.005	Supported
H5	KP → P	0.18	1.67	0.096	Not Supported
H6	KP → KPe	0.235	2.381	0.018	Supported
H7	P → MB	0.457	4.056	0.000	Supported
H8	KPe → MB	0.459	3.924	0.000	Supported

Source : Research Results , 2020.

4. DISCUSSION/CONCLUSION

Systems quality cannot determine for both use and user satisfaction of MonsoonSIM. This might be because the main motivation of the students in using MonsoonSIM was due to

the opportunity to win the award rather than the systems quality. While the information quality has positive effect on both use and user satisfaction of MonsoonSIM. This may suggest that information quality provided by MonsoonSIM is required to conduct the business analysis during the game. Service quality also has no effect on whether students will use the system or not due to their objective is to win the game no matter the service that they received. However, this service quality effect student satisfaction on MonsoonSIM. Moreover, result also suggest that the more frequent use and satisfaction from MonsoonSIM, student get more benefit from this system.

5. RECOMMENDATIONS

MonsoonSIM should continue to be used as a learning tool in Accounting undergraduate program, FBE UII because students feel the benefits of this gamification. However the management should also maintain a good communication with the Monsoon Academy in order to improve the quality of service which eventually increase student satisfaction as users.

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