



Student Satisfaction Assessment Study of E-Learning Users: User Satisfaction with IT (USIT)

Refki Saputra ¹, M.Amaruna Sahona ², Terttiaavin's M.Com ³

¹ Universitas Indo Global Mandiri, Indonesia

² Universitas Indo Global Mandiri, Indonesia

³ Universitas Indo Global Mandiri, Indonesia

Corresponding Author: Name, Refki Saputra E-mail; 2021110080@uigm.ac.id

Article Information:

Received November 10, 2023

Revised November 19, 2023

Accepted Desember 1, 2023

ABSTRACT

E-Learning has changed the traditional learning paradigm that is limited to a certain physical space and time. Through eLearning, students can access various educational contents, such as learning modules, learning videos, interactive exercises, and discussion forums, which can be accessed anytime and anywhere by using electronic devices such as computers, laptops, or smartphones. User Satisfaction with IT (USIT) was developed by DeLone and McLean in the context of Information Systems Evaluation in 1992. DeLone and McLean proposed a framework for measuring the success of information systems based on several dimensions including user satisfaction. This USIT framework has undergone development and modification from time to time by researchers and practitioners in the field of Information Systems Evaluation. This study aims to determine the level of satisfaction on the online simulation using the USIT model which is serious in user satisfaction which consists of variables in USIT. This study shows the level of satisfaction of students as e-learning users. It can be concluded that the majority of students are satisfied with their experience using the e-learning platform. This can be seen from the level of positive responses to questions relating to user satisfaction.

Keywords: E-Learning, USIT, Platforms

Journal Homepage <https://journal.ypidathu.or.id/index.php/Scientechno>

This is an open access article under the CC BY SA license

<https://creativecommons.org/licenses/by-sa/4.0/>

How to cite: Saputra, R., Sahona, M, A., Com, T, M. (2023). Student Satisfaction Assessment Study of E-Learning Users: User Satisfaction with IT (USIT). *Scientechno: Journal of Science and Technology*, 2(3). <https://doi.org/10.55849/Scientechno.v2i3.200>

Published by: Yayasan Pendidikan Islam Daarut Thufulah

INTRODUCTION

Education is one field that continues to undergo transformation along with technological developments (Xie dkk., 2019). One of the significant innovations in the world of education is e-learning, which combines information and communication

technology with the learning process. eLearning allows access to learning materials through digital platforms, enabling students and trainees to learn flexibly, independently, and according to their needs (Bentéjac dkk., 2021; P. Wang dkk., 2019). E-Learning has changed the traditional learning paradigm which was limited to a certain physical space and time (Zeng dkk., 2019). Through eLearning, students can access various educational content, such as learning modules, learning videos, interactive exercises, and discussion forums, which can be accessed anytime and anywhere using electronic devices such as computers, laptops, or smartphones (Alawadi dkk., 2022; Mukherjee & Mitra, 2019).

The main advantages of eLearning are its flexibility and accessibility. Students can learn according to their own rhythm and schedule, allowing them to organize learning time to fit their involvement in other activities, such as work, family, or other commitments (Mozaffari dkk., 2019). Additionally, eLearning also overcomes geographic barriers, allowing students from various locations to access quality education without having to be in the same physical place (Abiri dkk., 2019; Akour dkk., 2022; Shahid dkk., 2020). In addition, eLearning also enables personalization of learning. Students can learn at their own pace and learning style, with a variety of learning material choices. This helps students to be more focused and engaged in the learning process, improving understanding and retention of information (Lee & Kim, 2020; Liu dkk., 2022).

However, like every learning system, eLearning also has challenges and needs to be assessed critically (Pham dkk., 2020). Factors such as platform design, content quality, interaction with instructors and fellow students, and availability of technical support can influence the effectiveness of eLearning. Therefore, it is important to assess the eLearning user experience to ensure its quality and success (Franque dkk., 2020; Paliokas dkk., 2020; Zhao dkk., 2021). In this study, we will assess eLearning user satisfaction with User Satisfaction with IT (USIT). We will look at factors that influence eLearning user satisfaction, such as user interface, navigation, content quality, social interaction, and technical support (Padilla dkk., 2020). It is hoped that the results of this research will provide valuable insight into the development and improvement of eLearning, so that it can provide an optimal learning experience for users.

RESEARCH METHODOLOGY

The method used for research is as follows:

a. **User Satisfaction with IT (USIT)**

User Satisfaction with IT (USIT) was developed by DeLone and McLean in context of Information Systems Evaluation in 1992. DeLone and McLean proposed a framework for measuring the success of information systems based on several dimensions including user satisfaction (Arnold dkk., 2019). This USIT framework has undergone development and modification over time by researchers and practitioners in the field of Information Systems Evaluation. However, DeLone and McLean are considered significant early contributors in

the development of the USIT concept. In the USIT framework, user satisfaction is considered as one of the important indicators of the success of an information system. They identified factors that influence user satisfaction, including system quality, information quality, system usability, and benefits obtained from using the system (Ha & Lu, 2020; Park & Kim, 2022; T. Wang & Zhou, 2020).

In addition, DeLone and McLean also proposed other dimensions in their framework, such as information quality, service quality, system use, individual benefits, organizational benefits, and sustainability of system use. All of these dimensions are interrelated and contribute to user satisfaction (D. Wang dkk., 2019). The USIT framework has been widely used in Information Systems Evaluation research and practice to understand and measure the level of user satisfaction with information systems. This helps organizations to evaluate and improve their information systems to meet user needs and achieve desired organizational goals (Karras dkk., 2019; Liang dkk., 2019; Yurtsever dkk., 2020).

b. Method of collecting data

Data collection is the process of collecting information or facts needed in research or studies to answer research questions or achieve predetermined research objectives. The data collected can be in the form of numbers, facts, opinions, or observations that are relevant to the research topic. Data collection involves certain methods and techniques that are used to obtain accurate and relevant information. Data collection methods can be varied, such as observation, interviews, questionnaires, documentation studies, or secondary data collection. The importance of good data collection is to ensure that the information obtained is valid, trustworthy, and in accordance with the research objectives. In collecting data, it is important to consider the research design, population or sample to be studied, instruments used, data collection process, as well as ethical and environmental aspects data confidentiality.

A questionnaire is an instrument or tool used to collect data in the form of questions that are arranged systematically (Xiong dkk., 2021). Questionnaires are usually in the form of a series of questions addressed to respondents which they will answer according to the answer choices provided. The purpose of the questionnaire is to collect data about the respondents' views, knowledge, attitudes or behavior related to the research topic or study being conducted. Questionnaires can be used in many types of research, including academic research, market research, public opinion surveys, or program evaluation.

Questionnaire used for this research:

Part 1: Respondent Information

1. Gender:
 - a. Laki-laki
 - b. Female
2. Age:

- a. Less than 18 years old
 - b. 18-24 years old
 - c. 25-34 years old
 - d. 35-44 years old
 - e. 45 years and over
3. Last education:
- a. SD/SMP
 - b. SMA/SMK
 - c. Diploma
 - d. Sarjana (S1)
 - e. Magister (S2)
 - f. Doctor (S3)
4. Employment status:
- a. Student/college student
 - b. Office employees
 - c. Self-employed
 - d. PNS
 - e. Others (please specify: _____)

Part 2: e-Learning User Experience

5. How often do you use e-learning platforms?
- a. Every day
 - b. Several times a week
 - c. Once in a week
 - d. Once in a blue moon
6. Since when have you been using this e-learning platform?
- a. Less than 6 months
 - b. 6 months - 1 year
 - c. 1-2 years
 - d. More than 2 years
7. To what extent are you satisfied with the quality of learning content provided by this e-learning platform?
- a. Very dissatisfied
 - b. Not satisfied
 - c. Netral
 - d. What?
 - e. Very satisfied
8. To what extent are you satisfied with the user interface of this e learning platform?
- a. Very dissatisfied
 - b. Not satisfied
 - c. Netral

- d. What?
- e. Very satisfied
- 9. How easy was it for you to understand and use the features of this e-learning platform?
 - a. Very difficult
 - b. Difficult
 - c. Netral
 - d. Easy
 - e. Very easy
- 10. To what extent do you feel this e-learning platform helps in achieving your learning goals?
 - a. Doesn't help at all
 - b. Not very helpful
 - c. Netral
 - d. Help
 - e. Very helpful
- 11. How often do you experience technical problems when using this e-learning platform?
 - a. Every time use
 - b. Several times a week
 - c. Once in a week
 - d. Once in a blue moon
 - e. Never
- 12. What is your overall level of satisfaction with the experience of using this e-learning platform?
 - a. Very dissatisfied
 - b. Not satisfied
 - c. Netral
 - d. What?
 - e. Very satisfied

Part 3: Suggestions and Comments

- 13. Are there any additional features or content you expect from this e-learning platform?
- 14. Are there any problems or obstacles that need to be corrected in using this e-learning platform?

c. Research Population and Sample

In connection with efforts to claim the level of research success related to the availability of research resources and the ease of receiving data, the researchers only involved active students at the Indonesian University of Mandiri, majoring in Informatics Engineering, as the research population.

According to the report, the number of active students in the class of 2021 means 35 students. In determining the sample for this research, the Slovin formula will be used. So, according to the Slovin formula calculation, using a population of 35 students using a five% error rate, the students will be the research sample. constitutes 30 samples/students

d. Data analysis method

The data collection technique was carried out by distributing surveys to students using Google forms. So students' seriousness in answering the contents of the survey is very important in this research. After the survey data has been collected using a Likert scale, the data will then be tested for validity and reliability, then normality tests, multiple regression and hypothesis testing will be carried out using SPSS 16.

One of the uses of the internet in the educational sector is electronic learning (e learning). Using this technology, a lecturer can teach in front of a computer which is in one place, while the students may be more likely to be able to attend the lecture as long as other computers in the area are not in sync. As explained earlier, researchers are interested in conducting research that collaborates with the level of satisfaction of students using e-learning in the learning process

The use of online viewing requires a review to measure the level of satisfaction of online viewing users. This research aims to determine the level of satisfaction with online viewing using the USIT model which is serious about user satisfaction which consists of the variables contained in the USIT. "In order to maintain the quality of the system, system issues really need an assessment. And the user satisfaction factor is one of the initial foundations for assessing the system. One method that can be used to analyze is by using User Satisfaction with IT (USIT).

RESULT AND DISCUSSION

Instrument Test Results

Instrument testing is carried out to see whether the data obtained from the questionnaire results is truly worthy of research or not. This test uses a validity test and a reliability test, using the SPSS version 16 application. The absolute requirement that field information must have is that it must be valid and reliable. The following are the consequences and discussion of the results of the validity test and reliability test for each research dimension. Validity Test. The validity test is used to measure whether the contents of a questionnaire are legal or not. The validity test is made by comparing the calculated r with the r table with the test criteria. If the calculated $r > r$ table then the item is declared valid.

The results of the data validity test in this study used Corrected Item-Total Correlation with SPSS 16 software calculations. The table above shows that there are five EUCS variables and 1 satisfaction variable which are the material for the research.

As long as the research variables have an average of two statement items, except for the Accuracy and Ease of Use variables which have 3 statement items. As long as each item in each variable turns out to have an R value that is greater than the R table value, then from that, the researcher can state that all the items from each variable are declared valid. Reliability Test

Hypothesis Test Results

Hypothesis testing is carried out to prove hypotheses based on existing research. This testing includes the T test:

The individual parameter significance test (T test) is carried out to test the hypothesis for all variables one to the fifth variable. The test in this study uses a significance level of 0.05 from 2 sides, and compares Tcount with Ttable. To find the table, use the table formula = (religious level divided by 2; number of respondents – number of variables – 1), then $95\% (in = 0.05) / 2; 133 - five - 1 = (0.025 ; 127 = \text{number } 0.025 ; 127$, after that, looking for the distribution of ttable values, the value is found to be 1.978. So as long as it is obtained for the content variable, the tcount value is greater than ttable ($4,213 > 1.978$), then H0 is rejected and H1 is accepted. As a result, the hypothesis is that there is a partial impact of content on student satisfaction. in the Accuracy variable, the tcount value is greater as long as ttable ($3,209 > 1.978$), then H0 is rejected and H1 is accepted. So the hypothesis is that there is a partial impact of the Accuracy variable on student satisfaction.

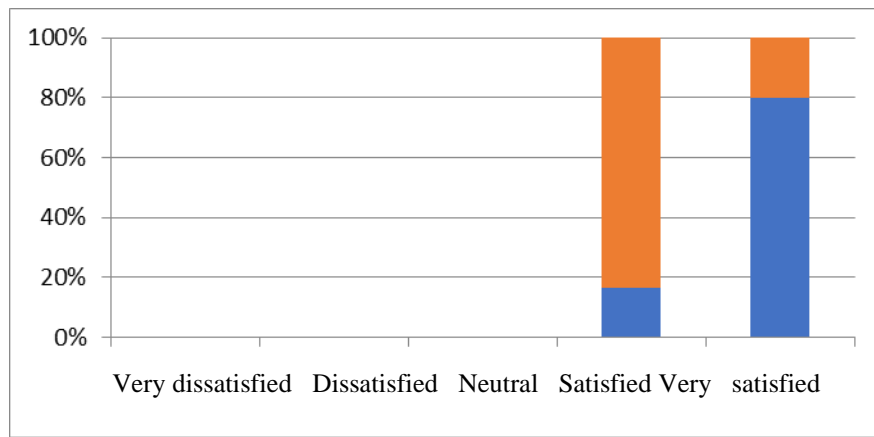
For the Format variable, the tcount value is greater than ttable ($2,315 > 1.978$), then H0 is rejected and H1 is accepted. So the hypothesis is that there is a partial influence of the Format variable on student satisfaction. in the Easy Of Use variable, the tcount value is greater than ttable ($two.389 > 1.978$), then H0 is rejected and H1 is accepted. So the partial hypothesis is that there is an impact of the Easy Of Use variable on student satisfaction. Based on what will occur in the test in the table above, there is an Fcount value of 51.064 using the Ftable value meaning 2.29 so that the result obtained is a greater Fcount value as long as the Ftable value or $51.064 > two.29$ and a significance level of $0.000 < 0.05$ then H0 is rejected and H1 accepted, it can be concluded that there is an impact of the content variable (X1), accuracy variable (X2), format variable (X3), easy of use variable (X4) and timeliness variable (X5) simultaneously on the student user satisfaction/satisfaction variable (Y). elearning.

The frequency distribution table for content variables based on the results of the processed questionnaire collection is as follows:

No	Answer	Scale Likert	F. rec	%
1	Very dissatisfied	0	0	0
2	Not satisfied	0	0	0

3	Neutral	0	0	0
4	What?	5	0	18%
5	Very satisfied	25	30	82%
Amount			30	100%

The table above can be seen in the following diagram chart:



Based on the results of quantitative analysis on the variable, respondents who strongly agreed (SS) were 82%, with a unanimous verdict of 18%, so it can be concluded that user satisfaction with e-learning performance is very satisfied.

CONCLUSION

This study shows the level of student satisfaction as e-learning users. It can be concluded that the majority of students are satisfied with their experience using the e-learning platform. This can be seen from the level of positive responses to questions related to user satisfaction. This research also reveals the benefits of e-learning felt by students. Students admit that e-learning provides flexibility in accessing material

learning, enabling access to online resources, and facilitating interactions with fellow students and faculty. E-Learning Student User Satisfaction Assessment Studies can provide a better understanding of student views and experiences related to the use of e-learning. This can be used as a basis for improving the user experience and effectiveness of e-learning in the future.

ACKNOWLEDGEMENT

This is a short text to acknowledge the contributions of specific colleagues, institutions, or agencies that aided the efforts of the authors.

REFERENCES

- Abiri, R., Borhani, S., Sellers, E. W., Jiang, Y., & Zhao, X. (2019). A comprehensive review of EEG-based brain–computer interface paradigms. *Journal of Neural Engineering*, 16(1), 011001. <https://doi.org/10.1088/1741-2552/aaf12e>
- Akour, I. A., Al-Marouf, R. S., Alfaisal, R., & Salloum, S. A. (2022). A conceptual framework for determining metaverse adoption in higher institutions of gulf area: An empirical study using hybrid SEM-ANN approach. *Computers and Education: Artificial Intelligence*, 3, 100052. <https://doi.org/10.1016/j.caeai.2022.100052>
- Alawadi, S., Mera, D., Fernández-Delgado, M., Alkhabbas, F., Olsson, C. M., & Davidsson, P. (2022). A comparison of machine learning algorithms for forecasting indoor temperature in smart buildings. *Energy Systems*, 13(3), 689–705. <https://doi.org/10.1007/s12667-020-00376-x>
- Arnold, E., Al-Jarrah, O. Y., Dianati, M., Fallah, S., Oxtoby, D., & Mouzakitis, A. (2019). A Survey on 3D Object Detection Methods for Autonomous Driving Applications. *IEEE Transactions on Intelligent Transportation Systems*, 20(10), 3782–3795. <https://doi.org/10.1109/TITS.2019.2892405>
- Bentéjac, C., Csörgő, A., & Martínez-Muñoz, G. (2021). A comparative analysis of gradient boosting algorithms. *Artificial Intelligence Review*, 54(3), 1937–1967. <https://doi.org/10.1007/s10462-020-09896-5>
- Franque, F. B., Oliveira, T., Tam, C., & Santini, F. D. O. (2020). A meta-analysis of the quantitative studies in continuance intention to use an information system. *Internet Research*, 31(1), 123–158. <https://doi.org/10.1108/INTR-03-2019-0103>
- Ha, N. S., & Lu, G. (2020). A review of recent research on bio-inspired structures and materials for energy absorption applications. *Composites Part B: Engineering*, 181, 107496. <https://doi.org/10.1016/j.compositesb.2019.107496>
- Karras, T., Laine, S., & Aila, T. (2019). A Style-Based Generator Architecture for Generative Adversarial Networks. *2019 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 4396–4405. <https://doi.org/10.1109/CVPR.2019.00453>
- Lee, L. N., & Kim, M. J. (2020). A Critical Review of Smart Residential Environments for Older Adults With a Focus on Pleasurable Experience. *Frontiers in Psychology*, 10, 3080. <https://doi.org/10.3389/fpsyg.2019.03080>
- Liang, Y., Zhao, C., Yuan, H., Chen, Y., Zhang, W., Huang, J., Yu, D., Liu, Y., Titirici, M., Chueh, Y., Yu, H., & Zhang, Q. (2019). A review of rechargeable batteries for portable electronic devices. *InfoMat*, 1(1), 6–32. <https://doi.org/10.1002/inf2.12000>
- Liu, Z., Mao, H., Wu, C.-Y., Feichtenhofer, C., Darrell, T., & Xie, S. (2022). A ConvNet for the 2020s. *2022 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR)*, 11966–11976. <https://doi.org/10.1109/CVPR52688.2022.01167>
- Mozaffari, M., Saad, W., Bennis, M., Nam, Y.-H., & Debbah, M. (2019). A Tutorial on UAVs for Wireless Networks: Applications, Challenges, and Open Problems.

- IEEE Communications Surveys & Tutorials*, 21(3), 2334–2360. <https://doi.org/10.1109/COMST.2019.2902862>
- Mukherjee, D., & Mitra, S. (2019). A comparative study of safe and unsafe signalized intersections from the view point of pedestrian behavior and perception. *Accident Analysis & Prevention*, 132, 105218. <https://doi.org/10.1016/j.aap.2019.06.010>
- Padilla, R., Netto, S. L., & Da Silva, E. A. B. (2020). A Survey on Performance Metrics for Object-Detection Algorithms. *2020 International Conference on Systems, Signals and Image Processing (IWSSIP)*, 237–242. <https://doi.org/10.1109/IWSSIP48289.2020.9145130>
- Paliokas, I., Patenidis, A. T., Mitsopoulou, E. E., Tsita, C., Pehlivanides, G., Karyati, E., Tsafaras, S., Stathopoulos, E. A., Kokkalas, A., Diplaris, S., Meditskos, G., Vrochidis, S., Tasiopoulou, E., Riggas, C., Votis, K., Kompatsiaris, I., & Tzovaras, D. (2020). A Gamified Augmented Reality Application for Digital Heritage and Tourism. *Applied Sciences*, 10(21), 7868. <https://doi.org/10.3390/app10217868>
- Park, S.-M., & Kim, Y.-G. (2022). A Metaverse: Taxonomy, Components, Applications, and Open Challenges. *IEEE Access*, 10, 4209–4251. <https://doi.org/10.1109/ACCESS.2021.3140175>
- Pham, Q.-V., Fang, F., Ha, V. N., Piran, Md. J., Le, M., Le, L. B., Hwang, W.-J., & Ding, Z. (2020). A Survey of Multi-Access Edge Computing in 5G and Beyond: Fundamentals, Technology Integration, and State-of-the-Art. *IEEE Access*, 8, 116974–117017. <https://doi.org/10.1109/ACCESS.2020.3001277>
- Shahid, M. A., Islam, N., Alam, M. M., Su'ud, M. M., & Musa, S. (2020). A Comprehensive Study of Load Balancing Approaches in the Cloud Computing Environment and a Novel Fault Tolerance Approach. *IEEE Access*, 8, 130500–130526. <https://doi.org/10.1109/ACCESS.2020.3009184>
- Wang, D., Tai, P. W. L., & Gao, G. (2019). Adeno-associated virus vector as a platform for gene therapy delivery. *Nature Reviews Drug Discovery*, 18(5), 358–378. <https://doi.org/10.1038/s41573-019-0012-9>
- Wang, P., Zhang, S., Bai, X., Billingham, M., He, W., Sun, M., Chen, Y., Lv, H., & Ji, H. (2019). 2.5DHANDS: A gesture-based MR remote collaborative platform. *The International Journal of Advanced Manufacturing Technology*, 102(5–8), 1339–1353. <https://doi.org/10.1007/s00170-018-03237-1>
- Wang, T., & Zhou, M. (2020). A method for product form design of integrating interactive genetic algorithm with the interval hesitation time and user satisfaction. *International Journal of Industrial Ergonomics*, 76, 102901. <https://doi.org/10.1016/j.ergon.2019.102901>
- Xie, J., Yu, F. R., Huang, T., Xie, R., Liu, J., Wang, C., & Liu, Y. (2019). A Survey of Machine Learning Techniques Applied to Software Defined Networking (SDN): Research Issues and Challenges. *IEEE Communications Surveys & Tutorials*, 21(1), 393–430. <https://doi.org/10.1109/COMST.2018.2866942>

- Xiong, G., Wu, Z., Yi, J., Fu, L., Yang, Z., Hsieh, C., Yin, M., Zeng, X., Wu, C., Lu, A., Chen, X., Hou, T., & Cao, D. (2021). ADMETlab 2.0: An integrated online platform for accurate and comprehensive predictions of ADMET properties. *Nucleic Acids Research*, 49(W1), W5–W14. <https://doi.org/10.1093/nar/gkab255>
- Yurtsever, E., Lambert, J., Carballo, A., & Takeda, K. (2020). A Survey of Autonomous Driving: *Common Practices and Emerging Technologies*. *IEEE Access*, 8, 58443–58469. <https://doi.org/10.1109/ACCESS.2020.2983149>
- Zeng, Y., Wu, Q., & Zhang, R. (2019). Accessing From the Sky: A Tutorial on UAV Communications for 5G and Beyond. *Proceedings of the IEEE*, 107(12), 2327–2375. <https://doi.org/10.1109/JPROC.2019.2952892>
- Zhao, H., Liu, Z., Yao, X., & Yang, Q. (2021). A machine learning-based sentiment analysis of online product reviews with a novel term weighting and feature selection approach. *Information Processing & Management*, 58(5), 102656. <https://doi.org/10.1016/j.ipm.2021.102656>
-

Copyright Holder :

© Refki Saputra et al. (2023).

First Publication Right :

© Sciencetchno: Journal of Science and Technology

This article is under:

