



## Analysis of Factors That Influence Continuance Use Intention of Mobile Banking Users Using Expectation Confirmation Model

Rudi Ginting<sup>1✉</sup>, Syarifuddin<sup>2</sup>, Adi Soeprapto<sup>3</sup>, Pas Mahyu Akhirianto<sup>4</sup>, Luh Putu Widya Adnyani<sup>5</sup>

<sup>1</sup>Universitas Tama Jagakarsa

<sup>2</sup>Institut Agama Islam Negeri Manado

<sup>3</sup>Universitas Pembangunan Nasional Veteran Yogyakarta

<sup>4</sup>Universitas Bina Sarana Informatika

<sup>5</sup>Universitas Indraprasta PGRI

[rudiginting2019@gmail.com](mailto:rudiginting2019@gmail.com)

### Abstract

This research aims to see the results of the level of measurement of continuity of use intention in mobile banking and what variables have an influence. This study uses a quantitative approach. In this research, data collection was carried out through a literature study, observation, and surveys. Researchers analyzed demographic data using Microsoft Excel. Researchers analyzed and interpreted the research results by describing demographic data, outer models, and inner models. The conclusion of the research results, namely this research has succeeded in measuring the level of continuance use intention (CUI) based on the coefficient of determination ( $R^2$ ), namely 0.7 (70%) categorized as medium-level sustainability intention, which is influenced by the variables used in the research model. The research results succeeded in determining the factors that influence continuance use intention (CUI), namely confirmation, perceived usefulness, satisfaction, and perceived security. The research results also succeeded in identifying factors that did not influence continuance use intention (CUI), namely self-efficacy, which received a value below the threshold for the path coefficient, namely 0.02, and a t-test value of 0.25, indicating that this relationship was rejected and had no significant effect.

**Keywords:** Continuance Use Intention, Mobile Banking, Expectation-Confirmation Model.

*JIDT is licensed under a Creative Commons 4.0 International License.*



### 1. Introduction

Information technology is experiencing quite rapid development in the current era. Information technology is becoming more reliable and sophisticated, all thanks to the results of human thought, which is becoming more advanced every year, thus showing the rapid development of informatics [1]. Increasingly advanced technology can support efforts to develop information that spreads to all levels of society [2]. Today, not only information but also a means of promotion, transactions, and other activities can become easier and faster. The development of information technology can influence the increasing number of internet users in Indonesia [3]. The survey results show that in 2022–2023, internet users in Indonesia reached more than 200 million people due to the COVID-19 pandemic crisis, making Indonesian people use the internet a lot in daily activities such as virtual video conference applications used for school and work, shopping, and online transactions in electronics to reduce physical contact between people [4]. Currently, most companies in various fields have followed the flow of technological developments, namely by utilizing information technology and the internet to support the company's business processes [5]. One of the fields that follows the flow of technological developments to digitize business processes is the banking sector [6].

Banking is one of the fields that follows the flow of technological developments to digitalize its business processes in line with the conventional shift towards digital in the banking sector [7]. Enhancing a nation's economy also greatly benefits the banking sector [8]. Technology advancements have an impact on the banking sector as well, and a large number of financial technology companies have been formed [9]. The banking sector is utilizing fintech 4.0 as a means of expanding its operations through application-based technology, including mobile banking, as a result of the current digitalization period [10]. Customers may conduct transactions whenever and wherever they choose with mobile banking, a unique banking solution that eliminates the need for physical branch offices. The growing number of people using smartphones for payments and daily life was the driving force behind the development of mobile banking [11]. Developing mobile banking services with capable technological systems can improve the quality and services provided, which will indirectly help improve the good image of banking [12]. Banks, as parties developing mobile banking, have an obligation to improve their services so that users have the intention to continue using mobile banking [13].

There are several factors that influence users when using mobile banking services, including practicality that can be felt by providing benefits to users, ease of operation, and confidence in using it safely, which can prevent the risk of fraud [14]. The banking industry is currently experiencing increasingly competitive competition [15]. Banks are trying to show their best performance to make it easier to capture and win market share among customers [16]. This can be seen from the intense competition between banks, which is increasingly global in terms of service quality and security in mobile banking in Indonesia [17]. Banks must develop effective strategies to improve the quality of performance and security provided by mobile banking in order to encourage users to continue to use it [18]. Mobile banking is one of the mobile banks that has experienced quite significant performance developments but pays little attention to security quality and often experiences system problems, resulting in poor ratings and several reviews from users based on Google Playstore data [19]. The author sees that the reviews obtained are included in the expectation confirmation model (ECM) variables, which can have an influence on the user's continued use intention [20]. ECM uses empirical data obtained from actual users to test the relationships between the variables being studied. This approach is based on factual data, thereby providing a high level of accuracy and reliability in the analysis process [21]. ECM has special advantages, one of which is providing a deeper understanding of the factors that encourage users to continue using the product repeatedly [22].

Consistent study indicates that factors including contentment, perceived utility, confirmation, and intention to continue using the product have a big impact on each other [23]. These factors are strongly correlated and influence the intention to use continuously. Because people place a high value on security when selecting and utilizing digital services, the perceived security variable was included [24]. Users are worried that their personal information might be accessed and used by unauthorized parties [25]. Because the user's degree of confidence affects their intention to continue using mobile banking services, the self-efficacy variable was introduced to the study [26] [27]. When consumers have a high degree of self-efficacy, they are more driven and self-assured to overcome difficulties and hurdles when utilizing digital services, which boosts their confidence in using them frequently [28]. With the addition of these variables, the total number of variables included in this study is now six: satisfaction, self-efficacy, perceived usefulness, perceived security, confirmation, and intention to continue using the product [29]. Continuance use intention is a user's decision to continue using a product after the user has had their first experience with the product [30]. Continuance use intention is a factor in the activity of repeating the use of transactions that have been carried out previously. Continuous user intention is a person's behavior to use a system continuously after getting benefits from the first use [31]. Continuance use intention is the user's decision to use a system continuously. Continuous use intention occurs when users of a system experience benefits on their first use [32]. Therefore, increasing the benefits of a system and satisfaction are determining factors in increasing the intention to use the system on an ongoing basis. The user's sustainable intention is the belief of each individual in using an information system or technology without coercion [33]. Users who are accustomed to using and have strong knowledge of a system can increase the quantity of use of the system [34]. Individuals who have a lot of experience in using a system will continue to use it continuously, and there will be less delay in the intention to reuse it [35]. Oliver introduced the expectation-disconfirmation theory (EDT) in 1980, which is the source of the expectation-confirmation model (ECM). According to the EDT hypothesis, a customer's post-purchase happiness can be influenced by their views of their initial expectations and actual performance, which in turn affects their intention to make more purchases [36]. Based on the suitability of an individual's decision to continue using IT and a customer's decision to make repeat purchases, ECM is a model that can forecast the continuing usage of IT. ECM and EDT have similarities in that they both involve influencing user decisions, are influenced by initial usage experiences, and have the potential to change those decisions [37]. Perceived usefulness is used in ECM as a replacement for the concept of expectations. This is done because the perceived usefulness variable is the only variable that consistently influences user intentions in all stages of information technology use in terms of time. The IT continuity model involves other indicators such as confirmation, satisfaction, and continuance intention.

## **2. Research Methods**

This research employs a quantitative methodology. In this study, surveys, observation, and a review of the literature were used to gather data. In this study, the author uses a survey to gather data or information from a sample of respondents who were chosen to be representative of the population under study. This approach is asking respondents to react to a set of pre-established questions or themes using a tool called a questionnaire. We'll create a research model to help us formulate our hypotheses. Bhattacharjee devised the expectation-confirmation model (ECM), which is used in this study. This study paradigm has four variables: perceived utility, confirmation, satisfaction, and intention to continue. By gathering a sample of 100 respondents who had used the mobile banking app in five major Indonesian cities and had completed at least two transactions, the author tested the research tool, or pilot study. Purposive sampling, one of the non-probability sampling technique group's methods, is used in this study. Researchers analyzed demographic data using Microsoft Excel. Respondent data will be grouped based on age, domicile, occupation, monthly income, how long they use the internet, how long they use mobile banking,

and how often they make transactions using mobile banking. Researchers analyze and interpret research results by describing demographic data, outer models, and inner models.

### **3. Results and Discussion**

From the results of the measurement model (outer model) analysis, it can be concluded that the proposed research model has met the criteria at each testing stage. The outer loading value, which is more than 0.7, the composite reliability, and Cronbach's alpha, which both fall below the minimal value threshold of 0.7, all support this claim. The cross-loading and Fornell-Larcker values produced also satisfy the predetermined conditions, and the Average Variance Extracted (AVE) value is more than 0.5. Once the requirements in each testing phase are met, the suggested research model demonstrates strong validity and reliability. It is proper to go on to the next phase of the research model proposal, which is testing the structural model (inner model). The association between Confirmation (C) and Perceived Usefulness (PU), as indicated by the path coefficient test findings, has a value of 0.7, indicating a significant influence of the Confirmation (C) variable on Perceived Usefulness (PU). Given that H1 has a t-test value of 13.1, the t-test findings likewise demonstrate that H1 is acceptable. H1 has a high influence value, as indicated by the  $f^2$  and  $q^2$  values as well. The confirmation variable has a big impact on perceived usefulness and is associated with the user's evaluation of how well mobile banking actually performs in comparison to their initial hopes or expectations. Perceived usefulness is influenced by confirmation, which indicates that mobile banking offers all the capabilities consumers need to meet their everyday demands. The majority of respondents who reported experiencing benefits from utilizing mobile banking beyond their initial expectations provide evidence for this. The present study's findings are consistent with earlier studies, which indicated that perceived usefulness is significantly influenced by confirmation.

The confirmation (C) variable has a considerable impact on the perceived security (PS) variable, according to the path coefficient test results, which indicate that H2, or the association between confirmation (C) and PS, has a value of 0.8. Due to its t-test score of 15.9, the t-test findings also demonstrate that H2 is acceptable. H2 has a significant influence value, as indicated by the  $f^2$  and  $q^2$  values as well. The confirmation variable has a big impact on perceived security and is associated with the user's evaluation of how well mobile banking actually performs in comparison to their initial hopes or expectations. Based on their observations, researchers believe that the inclusion of biometric features to mobile banking can match user expectations against security concerns. The majority of respondents also said that they have experienced mobile banking's assurance of security. The present study's findings are consistent with other research indicating that perceived security is significantly influenced by confirmation. According to the path coefficient test results, the perceived usefulness (PU) and satisfaction (S) relationship, or H3, has a value of 0.34. This indicates that there is a significant association between the two variables. Because H3 has a t-test value of 5.3, the t-test findings also demonstrate that it is acceptable. H3 has a medium influence value, according to the  $f^2$  value test results, and a minor influence value, according to the  $q^2$  value. The user's perception of the utility of mobile banking is linked to the perceived usefulness variable, and this has a big impact on satisfaction. The advantages of mobile banking have been felt by users from account opening to time-saving and more efficient transactions. The majority of respondents' responses, which indicated that mobile banking can boost productivity, are consistent with this. The present study's findings are consistent with other studies indicating that satisfaction is significantly impacted by perceived usefulness.

According to the path coefficient test results, the link between confirmation (C) and satisfaction (S), or H4, has a value of 0.3, indicating a significant impact of the confirmation (C) variable on the satisfaction (S) variable. Because H4 is 4.3, the t-test results also demonstrate that it is acceptable. H4 has a low influence value, as indicated by the  $f^2$  and  $q^2$  values as well. The confirmation variable, which has a big impact on satisfaction, is connected to the user's evaluation of how well mobile banking actually performs in comparison to their initial hopes or expectations. The majority of respondents believe that mobile banking services go above and beyond expectations, which boosts customer happiness, and that mobile banking facilitates cashless and card-less system transactions. The present study's findings are consistent with other research indicating that pleasure is significantly impacted by confirmation. The perceived security (PS) variable significantly influences the satisfaction (S) variable, according to the path coefficient test results, which indicate that H5, or the association between perceived security (PS) and satisfaction (S), has a value of 0.3. The t-test results also show that H5 is accepted because it has a t-test value of 3.9. The  $f^2$  and  $q^2$  values also show that H5 has a small influence value. The perceived security variable is related to the security that users feel regarding mobile banking, related to data protection and transaction security so that it is not misused by other parties, which has a significant effect on satisfaction. The Secure Socket Layer (SSL) feature is able to maintain the confidentiality and security of communications between user devices and servers, so the majority of respondents agree that mobile banking is a safe place for sending sensitive information. The present study's findings are consistent with other studies indicating that contentment is significantly impacted by perceived security.

This indicates that the perceived usefulness (PU) variable has a significant impact on the continuous use intention (CUI) variable. The path coefficient test results for H6, which represents the relationship between PU and CUI,

show a value of 0.35. Because H6 has a t-test value of 4.2, the t-test findings likewise demonstrate that it is acceptable. H6 has a low influence value, as indicated by the  $f^2$  and  $q^2$  values as well. Perceived utility is a variable that relates to how beneficial users think mobile banking is, and it has a big impact on their intention to keep using it. The majority of respondents said they would use mobile banking regularly in the future because they felt that it assisted them when making transactions, which can increase productivity and performance. The study's findings are consistent with earlier studies demonstrating that perceived utility significantly affects the desire to continue using a product. The association between satisfaction (S) and continuity use intention (CUI), or H7, has a value of 0.2 according to the path coefficient test results. This indicates that the satisfaction (S) variable significantly influences the continuity use intention (CUI) variable. Because H7 has a t-test value of 3.3, the t-test findings also demonstrate that it is acceptable. H7 has a low influence value, as indicated by the  $f^2$  and  $q^2$  values as well. Users' level of happiness with mobile banking is correlated with the satisfaction variable, which significantly influences their intention to continue using the service. The majority of respondents who said they plan to use mobile banking compared to other mobile banking indicate that users have had a positive and joyful experience with mobile banking. The present study's findings are consistent with other studies indicating that contentment significantly impacts the desire to continue using a product.

The perceived security (PS) variable has a considerable impact on the continuity use intention (CUI) variable, according to the path coefficient test results, which indicate that H8, or the association between PS and CUI, has a value of 0.3. Because H8 has a t-test value of 3.1, the t-test findings also demonstrate that it is acceptable. H8 has a low influence value, as indicated by the  $f^2$  and  $q^2$  values as well. Users' perceptions of security are linked to the perceived security variable, and this has a big impact on their intention to continue using mobile banking. Mobile banking has made every effort to reduce overall security concerns by encrypting user data with a user ID and MPIN. The study's findings are consistent with earlier studies that demonstrate how perceived security affects users' intentions to continue using a service. The association between self-efficacy (SE) and continuity use intention (CUI), or H9, has a value of 0.02, according to the path coefficient test results. This indicates that there is no meaningful relationship between the two variables. Because H9's t-test value is 0.25, the t-test findings also demonstrate that H9 is rejected. H9 has a low influence value, as indicated by the  $f^2$  and  $q^2$  values as well. The self-efficacy variable, which measures a person's confidence in their abilities and influences their use of mobile banking, has no discernible impact on their desire to stick with it. These results are supported by observations, where there is no manual help feature as a reference for guidelines for using mobile banking, resulting in users not being confident and requiring a long time. Users with low self-efficacy tend to stop using the system when faced with difficulties.

The results of measuring the outer model with SmartPLS in this study obtained good results. These results are marked by achieving scores that meet or even exceed each set standard. The results of measuring the inner model with SmartPLS in this study obtained mixed results. The values obtained from measuring the path coefficient and t-test for all paths have met the minimum threshold, except for the self-efficacy path towards continuance use intention. The values obtained from measuring the coefficient of determination ( $R^2$ ) and predictive relevance ( $Q^2$ ) show that all paths have met the threshold. The results of measuring effect size ( $f^2$ ) and relative impact ( $q^2$ ) have varying influences on each path. Self-efficacy does not have a significant influence on continued use intention; users tend to be pessimistic and not confident in being able to complete it without the help of others. Mobile banking does not have a manual assistance feature as a reference for usage guidelines. With the large number of services available, users are not confident in mastering the various features available, which makes them need more time to make transactions. Users with a low level of self-efficacy tend to stop using mobile banking if they encounter difficulties after use, so there is a need for improvements and development that can increase user confidence.

#### **4. Conclusion**

The conclusion of the research results, namely: This research has succeeded in measuring the level of continuity use intention (CUI), based on the coefficient of determination ( $R^2$ ), namely 0.7 (70%) categorized as medium level sustainability intention, which is influenced by the variables used in the research model. The research results succeeded in determining the factors that influence continuance use intention (CUI), namely confirmation, perceived usefulness, satisfaction, and perceived security. The research results also succeeded in identifying factors that did not influence continuance use intention (CUI), namely self-efficacy, which received a value below the threshold for the path coefficient, namely 0.02, and a t-test value of 0.25, indicating that this relationship was rejected and had no significant effect. The author provides suggestions based on the results of the research that has been carried out, which can be an important factor in considering further research. These suggestions are: The factor that is rejected is self-efficacy regarding continued use intention. Users tend not to be confident in mastering the application because they don't have usage guidelines, so improvements and development are needed to increase user confidence. Future research can combine other models and variables, such as the UTAUT model and the

variables perceived risk, effort expectancy, social influence, and trust. The research model can be applied to other mobile banking platforms in Indonesia to compare the results.

## References

- [1] Bakri, A. A., Wandanaya, A. B., Violin, V., & Fauzan, T. R. (2023). The Application of UTAUT Modified Model to Analyze the Customers Use Behavior of Shopee Paylater. *Jurnal Sistim Informasi dan Teknologi*, 96-101.
- [2] Sutrisno, S., Wulandari, W., Violin, V., Supriyadi, A., & Tawil, M. R. (2023). Prioritization of the Best Online Platform for MSMEs Using Simple Additive Weighting Method. *Journal on Education*, 5(3), 10265-10275.
- [3] Violin, V. (2022). Influence Leadership, Competence and Motivation To Performance Employee Service Health Regency Bay Bintuni West Papua Province. *J. Adm. J. Pemikir. Ilm. dan Pendidik. Adm. Perkantoran*, 9(2), 305-310.
- [4] Daghan, G., & Akkoyunlu, B., "Modeling the continuance usage intention of online learning environments," *Computers in Human Behavior*, vol. 60, pp. 198–211, 2016, <https://doi.org/10.1016/j.chb.2016.02.066>
- [5] Violin, V., Hasan, S., & Sufri, M. (2022). Pengaruh Konsep Low-Cost Carrier dan Kualitas Layanan terhadap Kepuasan dan Loyalitas Pelanggan pada Maskapai Lion Airlines di Indonesia. *Journal of Management Science (JMS)*, 3(1), 150-160.
- [6] Dineshwar, R., & Steven, M., "An Investigation on Mobile Banking Adoption and Usage: A Case Study of Mauritius," *Proceedings of 3rd Asia- Pacific Business Research Conference*, pp. 1–21, 2013.
- [7] Violin, V. (2019). PENGARUH HARGA POKOK PRODUKSI TERHADAP VOLUME PENJUALAN PADA PT. SEMEN BOSOWA MAROS. *Jurnal Bisnis dan Kewirausahaan*, 8(2).
- [8] Turyadi, I., Zulkifli, Z., Tawil, M. R., Ali, H., & Sadikin, A. (2023). The Role Of Digital Leadership In Organizations To Improve Employee Performance And Business Success. *Jurnal Ekonomi*, 12(02), 1671-1677.
- [9] Suriadi, S., Rafid, M., Zulkifli, Z., Abdurrohman, A., & Damirah, D. (2023). The Influence of Organizational Culture, Work Environment and Work Discipline on Job Satisfaction of Teachers at Boarding School. *Journal on Education*, 5(4), 14777-14781.
- [10] Aziz, F., Mayasari, N., Sabhan, S., Zulkifli, Z., & Yasin, M. F. (2022). The Future of Human Rights in the Digital Age: Indonesian Perspectives and Challenges. *Journal of Digital Law and Policy*, 2(1), 29-40.
- [11] Hendriyanto, D., Setiamika, M., & Primadewi, N. (2020). The effect of Ginkgo biloba against ototoxic hearing loss on advanced stage undifferentiated nasopharyngeal carcinoma receiving cisplatin chemotherapy. *INTERNATIONAL JOURNAL OF NASOPHARYNGEAL CARCINOMA*, 2(02), 44-46.
- [12] Nurcahyo, V. E., & Hendriyanto, D. (2020). The depression level effect on the QOL of patients with obstructive sleep apnea syndrome. *Oto Rhino Laryngologica Indonesiana (ORLI)*, 50(2), 135-40.
- [13] Haddar, G. A. H., Hendriyanto, D. ., Munandar, H. ., Kelibia, M. U. ., & Muhammadiyah, M. . (2023). ANALYSIS OF THE EFFECTIVENESS OF PROJECT STEAM-BASED LEARNING MODEL TO IMPROVE STUDENTS' CRITICAL THINKING SKILLS. *Community Development Journal : Jurnal Pengabdian Masyarakat*, 4(5), 10519–10525.
- [14] Hendriyanto, D., & Helmi, H. Protective role of Nigella sativa oil against cisplatin-induced ototoxicity: a literature review. *Journal of the Medical Sciences (Berkala Ilmu Kedokteran)*, 55(2).
- [15] Wibowo, T. S., Suhendi, D., Suwandana, I. M. A., Nurdiani, T. W., & Lubis, F. M. (2023). The Role Of Transformational Leadership And Organizational Culture In Increasing Employee Commitment. *International Journal of Economics, Business and Accounting Research (IJEBA)*, 7(2).
- [16] Rony, Z. T., Lubis, F. M., & Rizkyta, A. (2019). Job shadowing as one of the effective activities in the promotion process creates quality managers. *International Journal of Recent Technology and Engineering*, 8(2), 388-396.
- [17] Lubis, F. M. (2019). DIGITAL LEADERSHIP IN MANAGING WORK MOTIVATION OF MILLENIAL EMPLOYEES:(STUDY CASE: OIL AND GAS INDUSTRY IN INDONESIA). *Asia Proceedings of Social Sciences*, 4(2), 108-110.
- [18] Lubis, F., Rony, Z., & Santoso, B. (2020, March). Digital leadership in managing employee work motivation (case study: oil and gas industry in Indonesia). In *Proceedings of the 2nd International Conference on Social Sciences, ICSS 2019, 5-6 November 2019, Jakarta, Indonesia*.
- [19] Aryanto, T., Tukinah, U., Hartarini, Y. M., & Lubis, F. M. (2020). Connection of Stress and Job Satisfaction to Successful Organizational Stress Management: A Literature Review. *International Journal of Advanced Engineering Research and Science*, 7(11).
- [20] Tubagus, M., Syarifuddin, S., Syafie, L., Koderi, K., Satra, R., & Azis, H. (2023, May). The effectiveness test of the hybrid learning model based on the learning management system using statistical analysis. In *AIP Conference Proceedings* (Vol. 2595, No. 1). AIP Publishing.

- [21] Solehati, A., Mustafa, F., Hendrayani, E., Setyawati, K., Kusnadi, I. H., Suyoto, Y. T., & Tannady, H. (2022). Analisis Pengaruh Store Atmosphere dan Service Quality Terhadap Brand Preference (Studi Kasus Pelanggan Gerai Ritel Kopi di DKI Jakarta). *Jurnal Kewarganegaraan*, 6(2), 5146-5147.
- [22] Sunarso, B., & Mustafa, F. (2023). Analysing the Role of Visual Content in Increasing Attraction and Conversion in MSME Digital Marketing. *Journal of Contemporary Administration and Management (ADMAN)*, 1(3), 193-200.
- [23] Tubagus, M., Muslim, S., & Suriani, S. (2020). Development of learning management system-based blended learning model using claroline in higher education.
- [24] Mustafa, M. Y., Mustafa, F., Mustafa, R., & Mustafa, R. (2018). Japanese enterprises role on SMEs development in Indonesia: inside tobiko export and import. *Hasanuddin Economics and Business Review*, 2(2), 83-95.
- [25] Sudirjo, F., Mustafa, F., Astuti, E. D., Tawil, M. R., & Putra, A. S. B. (2023). Analysis Of The Influence Of Hedonic Motivation, Digital Devices Ease Of Use Perception, Benefits Of Digital Technology And Digital Promotion On Intention To Use Of Digital Wallets Consumers. *Jurnal Informasi Dan Teknologi*, 33-38.
- [26] Tubagus, M., Haerudin, H., Fathurohman, A., Adiyono, A., & Aslan, A. (2023). The impact of technology on islamic pesantren education and the learning outcomes of santri: new trends and possibilities. *Indonesian Journal of Education (INJOE)*, 3(3), 443-450.
- [27] Angreyani, A. D., Akbar, A., Haeruddin, M., Mustafa, M., & Mustafa, F. (2023). The Phantom Menace: A Moderation Analysis of Gender on MSMEs' Financial Literacy and Financial Performance. *Asian Research Journal of Arts & Social Sciences*, 21(2), 48-55.
- [28] Fitri, S., Wardana, Y. F. W., Mustafa, F., Sari, E. N., & Arief, I. (2023). Analysis of The Influence of Online Purchase Decisions, Digital Perceive Value of Quality and Digital Viral Marketing on Consumer Satisfaction of Skincare Products. *Jurnal Informasi dan Teknologi*, 148-152.
- [29] Tubagus, M., & Muslim, S. (2019). The Impact of The Development of Blended Learning Models Using Computer applications in Higher Education. *International Journal of Educational Research Review*, 4(4), 573-581.
- [30] Satra, R., Syafie, L., & Tubagus, M. (2023, May). Comparison of server technologies using Kernel-based virtual machine and container virtualization. In *AIP Conference Proceedings* (Vol. 2595, No. 1). AIP Publishing.
- [31] Sarah, S., Aswita, D., Ainun, N., Maulidar, M., & Azzarkasyi, M. (2022). The development of HOTS-based assessment instruments on educational statistics. *International Journal of Trends in Mathematics Education Research*, 5(1), 38-43.
- [32] Jefriyanto, J., Ainun, N., & Al Ardha, M. A. (2023). Application of Naïve Bayes Classification to Analyze Performance Using Stopwords. *Journal of Information System, Technology and Engineering*, 1(2), 49-53.
- [33] Ainun, N., & Jefriyanto, J. (2023). Development of Kirchoff's Law Drawing Tools to Improve Student's Science Skills in Learning Process of Direct Flow Circuits. *Journal of Information System, Technology and Engineering*, 1(2), 32-37.
- [34] Mahdalela, R., Ainun, N., & Roslina, R. (2022, December). An Analysis of Students' Mathematical Communicative Skills in Solving Sets Problems at SMP Negeri 1 Darul Hikma Aceh Jaya. In *Proceedings of International Conference on Multidiciplinary Research* (Vol. 5, No. 2, pp. 70-81).
- [35] Suryawati, I., Rahmani, R., & Ainun, N. (2022, November). Students' Mathematical Communication Ability through Blended Learning Model for Elementary School Students in Banda Aceh. In *Proceedings of International Conference on Multidiciplinary Research* (Vol. 5, No. 1, pp. 53-57).
- [36] Haetami, A., & Widodo, T., "The Effect of E-Service Quality on Customer Satisfaction, and Customer Loyalty in the Bni Mobile Banking Application. The Effect of E-Service Quality on Customer Satisfaction, and Customer Loyalty in Applications," *E-Proceeding of Management*, vol. 8, no. 6, pp. 7825–7833, 2021.
- [37] Muslichah, M., "The Effect of Self Efficacy and Information Quality on Behavioral Intention with Perceived Usefulness as Intervening Variable," *JABM JOURNAL of ACCOUNTING - BUSINESS & MANAGEMENT*, vol. 1, no. 25, pp. 21, 2018, <https://doi.org/10.31966/jabminternational.v1i25.327>