



Does Metaverse Banking Applications are Helpful in Fostering Customer Services? Evidence from Azerbaijan

Fagan Muzaffarli^{a*}, Kanan Mahmudlu^b

^a Department of Economics and Administration, Baku Engineering University, Xirdalan, Azerbaijan. Email: famuzaffarli@beu.edu.az

^b Faculty of Finance and Accounting, Azerbaijan State University of Economics, Baku, Azerbaijan. Email: kananmahmudlu@outlook.com

Correspondence: famuzaffarli@beu.edu.az

Received: 15 March 2022 **Revised:** 28 May 2022 **Accepted:** 03 June 2022 **Published:** 07 June 2022

Keywords

Banking Applications
Metaverse Technology
Customer Satisfaction
Customer Behavior
Banking Industry

Abstract

Metaverse technology enables banks to establish virtual branches where customers can interact with banking services, staff, and advisors in immersive virtual environments. However, the role of metaverse banking applications in satisfaction of customer was not addressed by the previous studies, therefore, this study addressed the role of metaverse banking applications in customer satisfaction. To fill this literature gap, this study developed a survey questionnaire and data was collected from the customers which was analyzed by using statistical tools. All the hypotheses proposed in this study to examine the role of metaverse banking applications in customer satisfaction was considered as supported which proved the positive role of metaverse banking applications in customer satisfaction of banking industry in Azerbaijan. Therefore, this study provided important implications for management of banking industry to promote customer satisfaction with the introduction of metaverse banking applications. Although the establishment of metaverse banking applications is tough, on the other hand, it has valuable outcomes.

Introduction

The validation of Metaverse banking applications products by authorities stems from their position as esteemed spiritual authorities within the community. Authorities serve as the spiritual guides of the community, providing interpretation and promoting adherence to jurisprudence (Lee et al., 2021). People's beliefs, emotions, and behaviors are significantly impacted by their influential power. There has been an increase in worldwide attention towards Metaverse banking applications as a feasible financial system that is based on principles and ethics (Gadalla, Keeling, & Abosag, 2013). In Islamic banking, the institution prohibits the imposition or receipt of interest, commonly known as *riba*, and promotes ethical and socially acceptable financial practices that align with the principles of Sharia, which is the Islamic legal system (Ali et al., 2018; Kahf, 2007; Mahdzan, Zainudin, & Au, 2017; Shaikh et al., 2020). Islamic banks offer a range of financial products, including savings accounts, mortgages, Sukuk (Islamic bonds), and investment funds. The endorsement of Islamic financial services by authorities carries significant significance due to their acknowledged status as religious authorities. Muslims often seek guidance from their authorities on matters related to finance, which is just one of the many areas of concern.

The major difficulty for banks is a lack of customers using metaverse. Because some customers look at financial organizations through the lens of their faith. Metaverse banking applications research is made more difficult by the sector's tiny client base. A bank's performance is determined by a variety of elements, including customer satisfaction with services and

products, trust in management, and the security of their financial data (Agolla, Makara, & Monametsi, 2018; Amin & Isa, 2008; Ashraf et al., 2017; Ghezelbash & Khodadadi, 2017; Herath & Herath, 2019). All of the aforementioned features are limitations of banks since most clients do not grasp the metaverse banking applications system's interest policy.

These concerns are felt around the world, not just in Azerbaijan. The low quality of service given by banks is the fault of their management. Consumers, on the other hand, are not investing because they are unaware of interest rate variations. Because of the conclusions of various research on the subject, Islamic banks have been able to grow their market share (Ahmed et al., 2017; De Leon, Atienza, & Susilo, 2020). The outcomes of these research point to many ways in which Islamic financial institutions might improve the quality of their services. Customers' knowledge of Islamic banks may be increased by advertising their packages, which can increase their faith in and readiness to invest in those institutions as a consequence of those institutions' enhanced service quality and foster higher customer loyalty (Minta & Stephen, 2017). In this case the role of Metaverse banking applications is most important which is focus on this study. Table 1 highlights the metaverse banking applications.

The authorities possess a comprehensive understanding of various domains of banks (Campanella et al., 2020; Kusdarjito, 2019; Sani, Amboningtyas, & Yulianeu, 2018; Singh & Mishra, 2020), encompassing fields such as economics and finance. The endorsement of the authorities may have a significant impact on customers' attitudes and behaviors towards metaverse

banking applications products. The validation of metaverse banking applications by authorities serves to legitimize and reinforce its credibility, thereby instilling confidence in clients that the products offered by metaverse banking applications are consistent with their ethical and religious principles. The seal of approval may enhance customers' confidence in the adherence of the items to Islamic principles (Aravind & Nair, 2020; Jamal & Naser, 2002; Ong, Nguyen, & Syed Alwi, 2017).

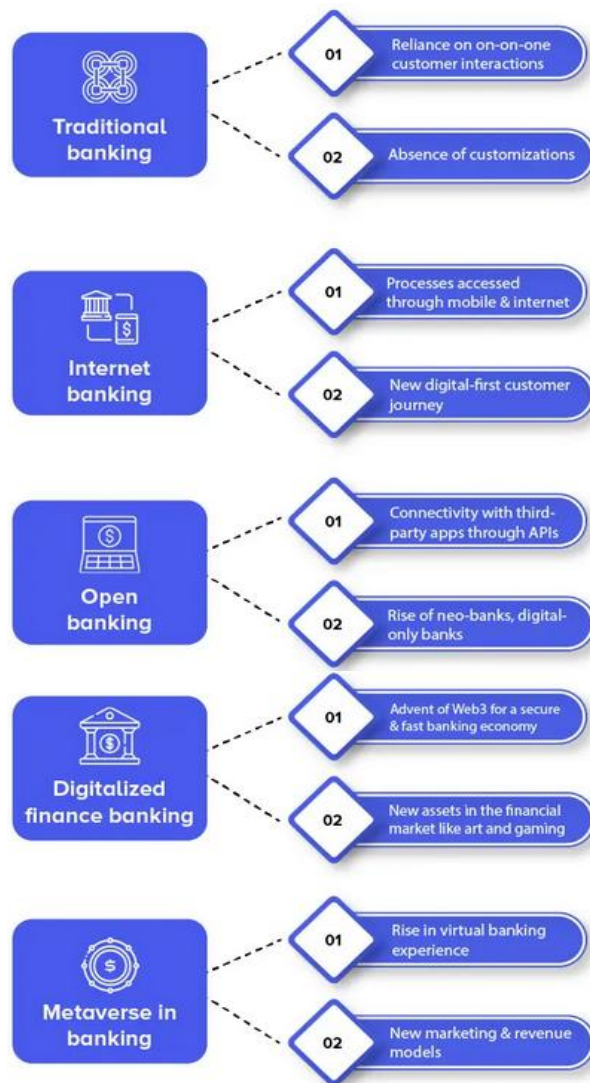


Figure 1: Metaverse Banking Applications.

Source: Developed by the Current Study.

Moreover, the endorsement of authorities may have an impact on clients' attitudes and perceptions towards metaverse banking applications. The endorsement of authorities, who are regarded as experts on religious matters, can potentially enhance customers' trust (Chaouali, Yahia, & Souiden, 2016; Eisingerich & Bell, 2008), confidence, and acceptance of

metaverse banking applications products. Customers who perceive their financial decisions to be consistent with their values may experience greater satisfaction due to their validation. Management may effectively promote financial products through various channels such as a sermon, essay, book, educational program, or public discussion. The encouragement of financial services has the potential to reach a wide audience, exert a significant influence on consumer decision-making, and stimulate demand for such services. In this case, metaverse trust on metaverse banking applications and image on metaverse banking applications is most important. Therefore, this study considered the role of trust on metaverse banking applications and image on metaverse banking applications on customer satisfaction through the mediating role of customer behavior. Despite the extensive work on metaverse by previous studies (Kim & Kim, 2021; Kye et al., 2021; Lee et al., 2021; Lee et al., 2011; Shen et al., 2021), the role of metaverse banking applications in satisfaction of customer was not addressed by the previous studies, therefore, this study addressed the role of metaverse banking applications in customer satisfaction.

Literature Review and Hypotheses Development

Customer satisfaction is a cornerstone of every successful business plan since the client is the ultimate source of income for all industries (Adapa & Roy, 2017; Cheng et al., 2017; Hammouda & Junoh, 2019; Hsu, 2019; Iacobucci, Grayson, & Ostrom, 1994; Mittal et al., 2017; Mohammed & Rashid, 2018; Zeelenberg & Pieters, 2004). For the last 15 years, the banking industry has prioritized the satisfaction of its customers. This is due to the competitive nature of the banking industry; whereby certain banks place a premium on customer satisfaction as a key component of their advertising strategies. As a result, the consumer ultimately benefited from the competitive market.

Experts govern their people not just spiritually, but also monetarily, making financial security a primary concern. Experiences promote Metaverse banking applications services to emphasize the importance of ethical financial practices and their potential benefits to people and communities (Gadedjissou-Tossou et al., 2021; Kabuye et al., 2019; Lwili et al., 2013; Mat et al., 2018). We believe that by granting this seal of approval, we would motivate more individuals to adopt Metaverse banking applications and better their financial status in accordance with their religious views. The customer satisfaction is most important in banking (Agolla et al., 2018; Ashraf et al., 2017; Herath & Herath, 2019) to foster metaverse applications. In this case, trust on metaverse banking applications and image on metaverse banking applications. Because trust on metaverse banking applications and image on metaverse banking applications has effect on customer behavior towards metaverse banking applications which lead to customer satisfaction, as shown in framework of the study given in Figure 1.

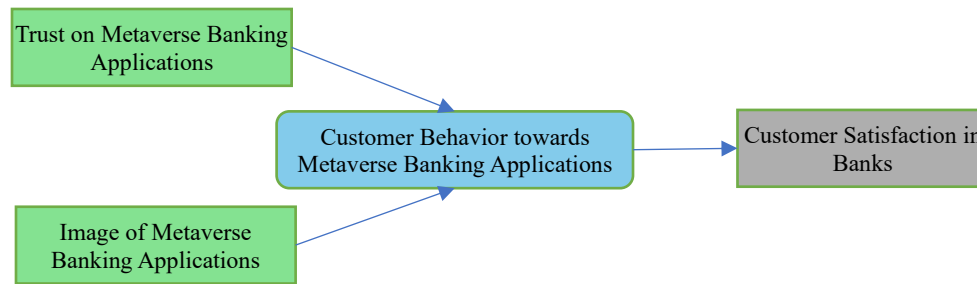


Figure 2: Framework of the Study Showing the Relationship Between Trust on Metaverse Banking Applications and Image on Metaverse Banking Applications, Customer Behavior Towards Metaverse Banking Applications and Customer Satisfaction.

Government department influence inside their communities (Zulaikah, Larasati, & Harymawan, 2019) may have a significant effect on social norms and social pressures, and hence on the habits and attitudes of the people who follow them. Endorsing metaverse banking applications products in Azerbaijan may start a chain reaction that would encourage more people in the area to consider and eventually adopt them. Beyond the scope of individual consumers, this influence has the potential to ease the widespread acceptance and integration of Metaverse banking applications into the larger social framework (Hussain, Shahmoradi, & Turk, 2016).

Certain customers may possess erroneous notions about metaverse banking applications as a result of rumors or misinterpretations. The authorities can provide valuable assistance to customers seeking to gain a deeper understanding of the true essence and advantages of metaverse banking applications. The authorities play a crucial role in shaping consumer behavior and attitudes through their efforts to educate (Agustin, Tarigan, & Hermina, 2021; Bei & Chiao, 2001; Rahbar & Abdul Wahid, 2011; Rahbar & Wahid, 2010) and rectify prevalent misconceptions.

Metaverse banking applications services and products are designed based on Islamic principles that promote fairness, transparency, and integrity in all financial transactions, thereby ensuring alignment with one's moral and ethical values. The validation provided by the authorities serves to establish metaverse banking applications as a morally and ethically superior option in comparison to conventional finance. Customers are likely to exhibit a greater sense of comfort and commitment towards a company if they perceive a congruence between their personal beliefs and those espoused by the organization (Hume & Sullivan Mort, 2010; Imran et al., 2019; Lee & Heo, 2009; Ong et al., 2017; Popp & Woratschek, 2017; Zameer et al., 2018).

The term "customer satisfaction" pertains to the level of contentment experienced by a customer in relation to a particular service or product (Cronin Jr, Brady, & Hult, 2000; Ibrahim & Najjar, 2008; Taylor & Baker, 1994). Prioritizing this objective is imperative for any organization's strategic success. A rise in profits and a decline in expenditure can be attributed to satisfied customers who engage in positive word-of-mouth communication and exhibit repeat purchase behavior.

During our discussion, the topic of service quality was prioritized as it was acknowledged that the level of service quality provided by a bank has a significant impact on customer satisfaction (Al-Hawari & Ward, 2006; Li et al., 2021). In order to guarantee the provision of superior service, it is imperative for management to accurately delineate service quality and pursue the most reliable method of evaluation. Service quality is believed to have a strong correlation with consumer satisfaction, as suggested by multiple sources.

Trust in metaverse banking applications and image these applications project pointedly influence customer behavior concerning adopting and utilizing these digital services. Since metaverse is a newly developed technology (Lee et al., 2021; Rathore, 2018; Shen et al., 2021), it is tough to believe on the benefits. As the banking industry incorporates metaverse, it becomes imperative to understand the dynamics between trust, image, and customer behavior, eventually leading to customer satisfaction. The image of metaverse banking applications also plays a crucial role in shaping customer behavior. The perception of these applications as innovative, reliable, and user-friendly can attract a wider audience and encourage more frequent use. It refers to the virtual worlds in which users represented by avatars interact (Dioniso, Burns III, & Gilbert, 2013). A positive image is enriched through marketing efforts, customer statements, and overall user experience. Applications that are visually appealing, intuitive to navigate, and the seamlessly integrate with other digital services tend to create a favorable impression. Additionally, the association with well-established and the reputable financial corporations can heighten the image of metaverse banking applications, making the buyers more comfortable and willing to explore this new frontier of banking.

In summary of discussion, it can be described as trust and image are pivotal in shaping customer behavior towards the important and newly developed technology of metaverse banking applications. By directing on building trust through security and transparency as well as enhancing image through innovation and client experience, banks can induce positive customer behavior, leading to pronounced customer satisfaction. As metaverse continues to evolve, these factors will be desperate in determining the success of banking applications in this virtual space. Finally, the aforementioned discussion lead to the following hypotheses:

Hypothesis 1 (H1): *Trust on metaverse banking applications has value for customer satisfaction in the banking industry.*

Hypothesis 2 (H2): *Image on metaverse banking applications has value for customer satisfaction in the banking industry.*

Hypothesis 3 (H3): *Customer behavior towards metaverse banking applications has value for customer satisfaction in the banking industry.*

Hypothesis 4 (H4): *Customer behavior towards metaverse banking applications mediates the relationship between trust on metaverse banking applications and customer satisfaction in the banking industry.*

Hypothesis 5 (H5): *Customer behavior towards metaverse banking applications mediates the relationship between image on metaverse banking applications and customer satisfaction in the banking industry.*

Methodology

This study used a quantitative approach, which allows for a more comprehensive exploration of the studied topic since it collects data from through survey. It is important to know the opinion and views of people. Quantitative methods, such as surveys were used which designed through Likert scale questions to gauge consumer attitudes towards metaverse banking applications services and levels of satisfaction. This quantitative approach allows for the collection of measurable data, opening the door to statistical analysis and the identification of causal relationships (Bryman & Bell, 2003; Creswell, 2009; Neuman, 2013; Strijker, Bosworth, & Bouter, 2020).

A cross-sectional research design, in which data is gathered at a single point in time, was used for this investigation. With this setup, this study investigate the phenomenon of interest in terms of the connection between trust, image and consumer behavior towards metaverse banking applications products and customer satisfaction at a given period. A portion of bank customers will be surveyed to gauge their behavior and level of contentment with metaverse banking applications services. The survey contained closed questions on a Likert scale to capture quantitative information. The Likert scale questions helped to measure customer attitudes, preferences, and satisfaction levels. To ensure the validity and reliability of the study design, the survey instrument was verified via expert review and pilot testing. Experts assessed the survey questions for clarity, applicability, and comprehensiveness, and their feedback was used to refine the instrument. Pilot testing was done on a subset of respondents to identify any questions that are unclear or redundant. 60 responses were used for pilot tests and reliability and validity was examined. Based on the results of the pilot testing, the instrument was fine-tuned to ensure it successfully collects the targeted structures.

The study sample consisted of people who have banked with financial institutions, chosen at random. This technique was used to reach people who have first-hand experience with metaverse banking applications services and who may have taken a advice while making a decision. Internal validity was

enhanced since the study focused on persons who are directly relevant to the research subject. Finally, 1500 questionnaires were distributed among the customers of banks in Azerbaijan. Out of these questionnaires, 701 were returned which were used to examine the effect of variables on customer satisfaction. The scale items of each variable are as follows:

Trust on Metaverse Banking Applications

1. I have complete confidence in metaverse banking applications.
2. I have complete confidence that metaverse banking applications work towards effectiveness.
3. I have complete confidence that metaverse banking applications work towards ease of customers.

Image of Metaverse Banking Applications

1. I believe that metaverse banking applications are secure.
2. I believe that metaverse banking applications are time saving.
3. I believe that metaverse banking applications require less effort.

Customer Behavior towards Metaverse Banking Applications

1. I love to use metaverse banking applications.
2. I love to recommend metaverse banking applications to other users.
3. I love to follow innovative ways in metaverse banking applications.

Customer Satisfaction in the Banking Industry

1. Metaverse banking applications are of great value to me.
2. I always prefer metaverse banking applications during transactions.
3. I am comfortable with metaverse banking applications during transactions.

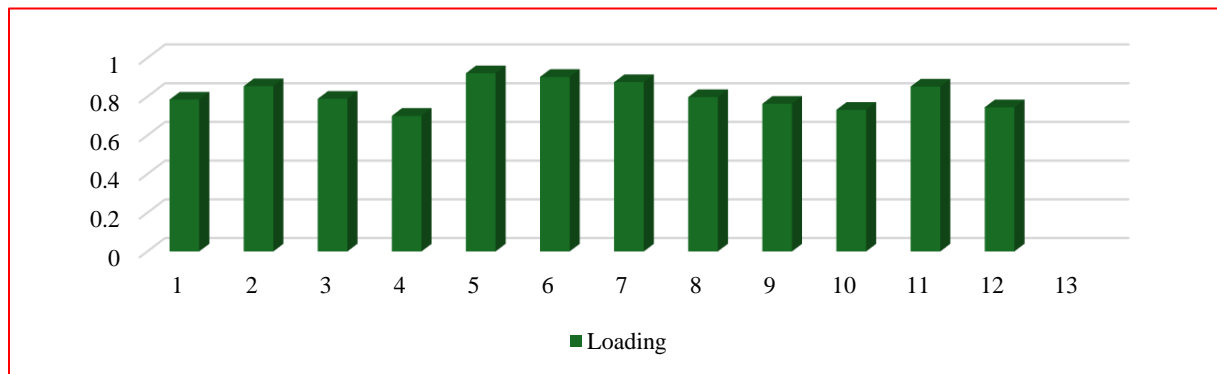
Data Analysis

Convergent Validity

This study used an examination of the items' loadings. Loading estimates should be 0.50 or higher, preferably 0.70 or higher (Hair et al., 2010; Hair Jr, Howard, & Nitzl, 2020). In the meanwhile, items with low factor loadings should be deleted. Furthermore, all build elements on their respective structures should be heavily loaded. In this study, the factor loadings of all items were greater than 0.7. Construct reliability was considered through composite reliability which is higher than 0.7 for trust on metaverse banking applications, image of metaverse banking applications, customer behavior towards metaverse banking applications and customer satisfaction in the banking industry. Results are shown in Table 2. Average variance extracted (AVE) is also higher than 0.5. The loadings, composite reliability and AVE proved convergent validity in this study. Figure 3 also shows the factor loadings.

Table 1: Convergent Validity.

Variables	Scale Items	Loading
Trust on Metaverse Banking Applications	1. I have complete confidence in metaverse banking applications.	0.785
	2. I have complete confidence that metaverse banking applications work towards effectiveness.	0.854
	3. I have complete confidence that metaverse banking applications work towards ease of customers.	0.789
Image of Metaverse Banking Applications	1. I believe that metaverse banking applications are secure.	0.701
	2. I believe that metaverse banking applications are time saving.	0.921
	3. I believe that metaverse banking applications require less effort.	0.902
Customer Behavior towards Metaverse Banking Applications	1. I love to use metaverse banking applications.	0.875
	2. I love to recommend metaverse banking applications to other users.	0.798
	3. I love to follow innovative ways in metaverse banking applications.	0.763
Customer Satisfaction in the Banking Industry	1. Metaverse banking applications are of great value to me.	0.732
	2. I always prefer metaverse banking applications during transactions.	0.852
	3. I am comfortable with metaverse banking applications during transactions.	0.745

**Figure 3:** Loadings.

Discriminant Validity

Discriminant validity refers to the degree to which a variable is actually distinct from other variables (Hair et al., 2010). The Fornell Larcker criterion (FLC) and the Heterotrait-Monotrait Ratio (HTMT) (Henseler et al., 2015) were used to assess discriminant validity in this study (Fornell & Larcker, 1981; Henseler, Ringle, & Sarstedt, 2015). Fornell Larcker criterion (FLC) is reported in Table 3 and Figure 1. Fornell and Larcker (1981) employed the FLC to examine discriminant validity, and the square root of the AVE for all components was used and

compared to the correlation values of the other constructs. The AVE square root coefficients were displayed along the correlation matrix's diagonal. The square root AVE values should be bigger than the squared correlation estimations to demonstrate discriminant validity. The AVE square root values outperformed the correlation of all constructs in this study. All diagonal items in the respective rows and columns were greater than off-diagonal elements, showing that all constructs had acceptable discriminant validity.

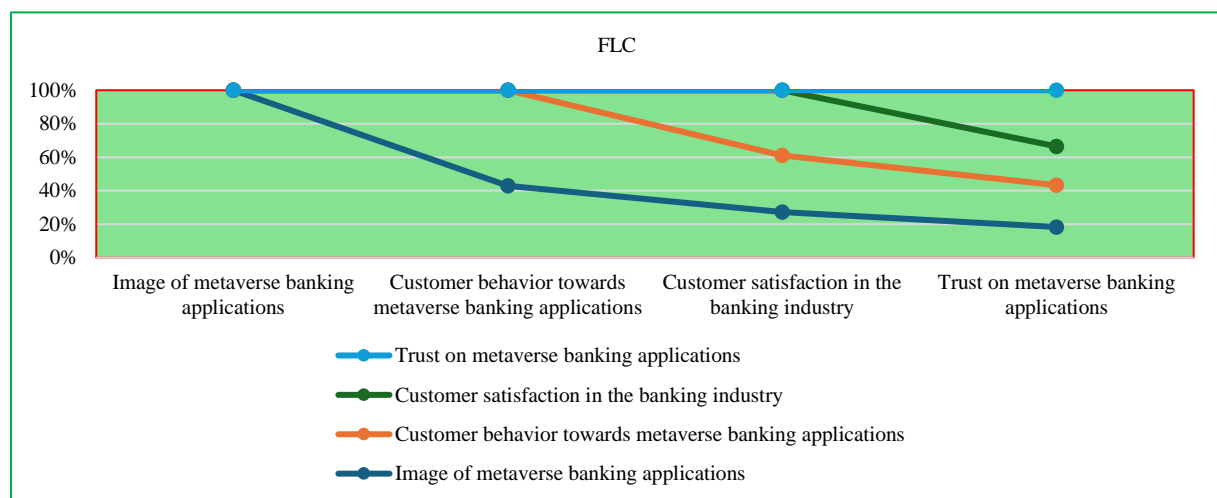
**Figure 4:** Discriminant Validity.

Table 2: Fornell Larcker Criterion (FLC).

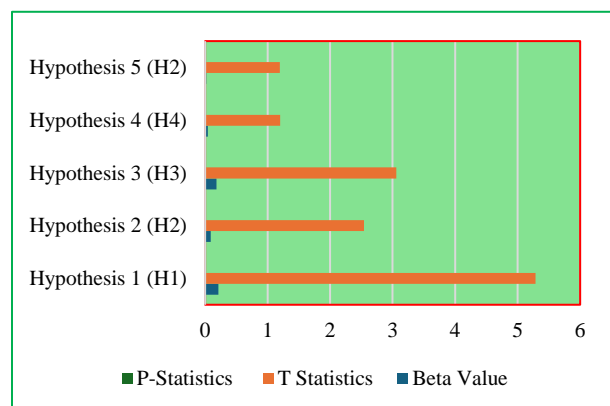
	Image of metaverse banking applications	Customer behavior towards metaverse banking applications	Customer satisfaction in the banking industry	Trust on metaverse banking applications
Image of metaverse banking applications	0.754			
Customer behavior towards metaverse banking applications	0.59	0.785		
Customer satisfaction in the banking industry	0.46	0.568	0.658	
Trust on metaverse banking applications	0.411	0.562	0.52	0.754

Hypotheses Testing Results

Results of hypotheses are reported in Table 3 and Figure 5. According to the results, all the hypotheses are significant because the t-value is higher than 1.96, a minimum level considered by the current study following by the previous studies (Hafkesbrink, 2021; Hair, Ringle, & Sarstedt, 2011; Hair Jr et al., 2016; Yusif et al., 2020). It is found that trust in metaverse banking applications and image of metaverse banking applications has positive effect on customer behavior towards metaverse banking applications. Furthermore, customer behavior towards metaverse banking applications has a positive effect on customer satisfaction in the banking industry. It is also evident that customer behavior towards metaverse banking applications mediates the relationship between trust on metaverse banking applications and customer satisfaction in the banking industry. Similarly, customer behavior towards metaverse banking applications mediates the relationship between image on metaverse banking applications and customer satisfaction in the banking industry.

Table 3: Hypotheses Testing Results.

Hypothesis	Beta Value	T Statistics	P-Statistics
Hypothesis 1 (H1)	0.211	5.288	P < 0.05
Hypothesis 2 (H2)	0.089	2.544	P < 0.05
Hypothesis 3 (H3)	0.182	3.058	P < 0.05
Hypothesis 4 (H4)	0.045	1.199	P < 0.05
Hypothesis 5 (H2)	0.018	1.198	P < 0.05

**Figure 5:** Results.

Discussion and Conclusion

The role of metaverse banking applications in satisfaction of customer was not addressed by the previous studies, therefore, this study addressed the role of metaverse banking applications in customer satisfaction in Azerbaijan. To fill this literature gap, this study developed a survey questionnaire and data was collected from the customers which was analyzed by using statistical tools. Five hypotheses were proposed based on the direct effect and indirect effect of customer behavior on the

metaverse banking applications.

As a result of the proliferation of readily available commodities and amenities, there exists a necessity to modify consumer conduct and augment contentment within the domain of metaverse banking applications. A potential approach to attain this objective could involve the promotion of metaverse banking applications offerings by notable figures within the populace, particularly religious leaders such as authorities. The endorsement of an authorities, a highly regarded religious figure, could potentially exert a substantial impact on the behavior and well-being of customers within the realm of metaverse finance (Mahdzan et al., 2017; Shaikh et al., 2020). This study aims to analyze the significance of applications related to metaverse, its potential impact on consumers' attitudes and beliefs, and the most efficacious approaches that authorities can employ to recommend metaverse banking applications products and results proved important role of implications which is consistent with the previous studies.

The significance of contented customers is widely acknowledged in the fiercely competitive banking industry of today (Chaouali et al., 2016; Dash, Bhushan, & Samal, 2014; Ofosu-Boateng & Agyei, 2020). The present research employed modern technique to examine the relationship between customer satisfaction and the likelihood of using metaverse within the context of Azerbaijan. The study reveals that customers' inclination to banks is significantly influenced by their perceptions of the banks' dependability and compassion through metaverse. The inclination of depositors to other banks was found to be associated with the existence of metaverse finance. The study proposes a novel concept that suggests that comprehending the decision-making processes of depositors and the development of their perception of risk could prove advantageous in the realm of banking risk management, however, it can be managed through metaverse applications.

Enhanced comprehension of the historical and cultural importance of authorities' approbation in the metaverse banking applications industry would be advantageous for both scholars and practitioners. To enhance client awareness and acceptance of metaverse banking applications products, it may be beneficial for metaverse banking applications organizations to recognize the influence and authority of authorities and establish effective communication channels with them to obtain their endorsement. The banking industry of Azerbaijan is subject to heightened competition, which necessitates the analysis of consumer behaviors in order to retain customers and provide incentives.

Limitations and Future Recommendations

This study presented important insights; however, the

important element of banking services is service quality which affects customer satisfaction was not addressed in this study. A low-quality service is one in which customers' expectations exceed their perceptions, while a high-quality service means that customers' expectations are exceeded. The service quality model was criticized mostly for its conceptual adequacy, operationalization, and ambiguity of the expectations construct. The five-dimensional notion of service quality should not be used because the five-dimensional notion of service quality collapses when replicated across many contexts, and the 22 found components do not consistently load into the required dimensions. Furthermore, this study is limited to the metaverse image and metaverse trust in various applications, the metaverse security is another important concern of the customers which is not addressed in this study. Hence, future studies should address metaverse applications security in the existing framework.

Acknowledgement

We are truly appreciative of the efforts and input of all contributors and participants.

CRediT Authorship Contribution Statement

Kanan Mahmudlu: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Fagan Muzaffarli: Software, Supervision, Validation: Visualization. Writing – original draft. Fagan Muzaffarli: Writing – review & editing.

Declaration of Competing Interest

We declare that there are no financial or personal interests that could be perceived as conflicts.

Funding

This research did not receive any financial support from external sources.

Ethical Statement

The authors conducted this research in accordance with ethical principles, without requiring approval due to the lack of human biological materials.

Data Availability Statement

Data supporting the findings of this research are accessible from the corresponding author on reasonable request.

References

- Adapa, S., & Roy, S. K. (2017). Case Study 6: Malaysian Airlines Versus AirAsia: Customer Satisfaction, Service Quality and Service Branding. In S. Roy, D. Mutum, & B. Nguyen (Eds.), *Services Marketing Cases in Emerging Markets* (pp. 67-75). Springer. https://doi.org/10.1007/978-3-319-32970-3_8
- Agolla, J. E., Makara, T., & Monametsi, G. (2018). Impact of Banking Innovations on Customer Attraction, Satisfaction and Retention: The Case of Commercial Banks in Botswana. *International Journal of Electronic Banking*, 1(2), 150-170. <https://doi.org/10.1504/IJEBANK.2018.095598>
- Agustin, K. I., Tarigan, H. b., & Hermina, N. (2021). The Influence of Consumer Behavior and Environmental Factors Through Business Strategies on Marketing Performance of MSMEs in West Java During the Pandemic Covid-19. *Psychology and Education Journal*, 58(3), 655-663. <https://doi.org/10.17762/pae.v58i3.2782>
- Ahmed, R. R., Vveinhardt, J., Štreimikienė, D., Ashraf, M., & Channar, Z. A. (2017). Modified SERVQUAL model and effects of customer attitude and technology on customer satisfaction in banking industry: mediation, moderation and conditional process analysis. *Journal of Business Economics and Management*, 18(5), 974-1004. <https://doi.org/10.3846/16111699.2017.1368034>
- Al-Hawari, M., & Ward, T. (2006). The effect of automated service quality on Australian banks' financial performance and the mediating role of customer satisfaction. *Marketing Intelligence & Planning*, 24(2), 127-147. <https://doi.org/10.1108/02634500610653991>
- Ali, H., Zain, M. Z., Hashmi, H. S., Abbas, M. H., Shahid, M. W., & Tariq, U. (2018). Awareness and knowledge of fintech among Islamic banking and finance students in Pakistan. *Islamic Banking and Finance Review*, 5(1), 01-22. <https://doi.org/10.32350/ibfr.2018.05.01>
- Amin, M., & Isa, Z. (2008). An examination of the relationship between service quality perception and customer satisfaction: A SEM approach towards Malaysian Islamic banking. *International Journal of Islamic and Middle Eastern Finance and Management*, 1(3), 191-209. <https://doi.org/10.1108/17538390810901131>
- Aravind, M., & Nair, V. K. (2020). Customer's operational risk towards electronic banking products and its mitigation: a covariance-based structural equation modelling approach. *International Journal of Electronic Banking*, 2(1), 38-54. <https://doi.org/10.1504/IJEBANK.2020.105416>
- Ashraf, S., Ilyas, R., Imtiaz, M., & Tahir, H. M. (2017). Impact of CSR on customer loyalty: putting customer trust, customer identification, customer satisfaction and customer commitment into equation-a study on the banking sector of Pakistan. *International Journal of Multidisciplinary and Current Research*, 5(5), 1362-1372. <http://ijmcr.com/wp-content/uploads/2017/11/Paper191362-1372.pdf>
- Bei, L.-T., & Chiao, Y.-C. (2001). An integrated model for the effects of perceived product, perceived service quality, and perceived price fairness on consumer satisfaction and loyalty. *Journal of Consumer Satisfaction, Dissatisfaction and Complaining Behavior*, 14, 125-140. <https://www.jcsdcb.com/index.php/JCSDCB/article/view/110>
- Bryman, A., & Bell, E. (2003). Breaking Down the Quantitative/Qualitative Divide. *Business Research Methods*, 2(1), 465-478. <https://doi.org/10.1093/hec/29780198869443.003.0039>
- Campanella, F., Del Giudice, M., Thrassou, A., & Vrontis, D. (2020). Ambidextrous organizations in the banking sector: an empirical verification of banks' performance and conceptual development. *The International Journal of Human Resource Management*, 31(2), 272-302. <https://doi.org/10.1080/09585192.2016.1239122>
- Chaouali, W., Yahia, I. B., & Souiden, N. (2016). The interplay of counter-conformity motivation, social influence, and trust in customers' intention to adopt Internet banking services: The case of an emerging country. *Journal of Retailing and Consumer Services*, 28, 209-218. <https://doi.org/10.1016/j.jretconser.2015.10.007>
- Cheng, J.-C., Chen, C.-Y., Yen, C.-H., & Teng, H.-Y. (2017). Building customer satisfaction with tour leaders: The roles of customer trust, justice perception, and cooperation in group package tours. *Asia Pacific Journal of Tourism Research*, 22(4), 395-407. <https://doi.org/10.1080/10543537.2017.1368034>

- doi.org/10.1080/10941665.2016.1271816
- Creswell, J. W. (2009). *Research designs: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.
- Cronin Jr, J. J., Brady, M. K., & Hult, G. T. M. (2000). Assessing the effects of quality, value, and customer satisfaction on consumer behavioral intentions in service environments. *Journal of Retailing*, 76(2), 193-218. [https://doi.org/10.1016/S0022-4359\(00\)00028-2](https://doi.org/10.1016/S0022-4359(00)00028-2)
- Dash, M., Bhusan, P. B., & Samal, S. (2014). Determinants of Customers' Adoption of Mobile Banking: An Empirical Study by Integrating Diffusion of Innovation with Attitude. *Journal of Internet Banking and Commerce*, 19(3), 1-21. <https://www.proquest.com/openview/15747af6db9013ef66d0a0fa55d1105b>
- De Leon, M. V., Atienza, R. P., & Susilo, D. (2020). Influence of self-service technology (SST) service quality dimensions as a second-order factor on perceived value and customer satisfaction in a mobile banking application. *Cogent Business & Management*, 7(1), 1794241. <https://doi.org/10.1080/23311975.2020.1794241>
- Dioniso, J. D., Burns III, W. G., & Gilbert, R. (2013). 3D Virtual Worlds and the Metaverse: Current Status and Future Possibilities. *Electrical Engineering & Computer Science Faculty Works*, 45(3), 36-42. <https://doi.org/10.1145/2480741.2480751>
- Eisingerich, A. B., & Bell, S. J. (2008). Perceived Service Quality and Customer Trust: Does Enhancing Customers' Service Knowledge Matter? *Journal of Service Research*, 10(3), 256-268. <https://doi.org/10.1177/1094670507310769>
- Fornell, C., & Larcker, D. F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *Journal of Marketing Research*, 18(1), 39-50. <https://doi.org/10.1177/00224378101800104>
- Gadalla, E., Keeling, K., & Abosag, I. (2013). Metaverse-retail service quality: A future framework for retail service quality in the 3D internet. *Journal of Marketing Management*, 29(13-14), 1493-1517. <https://doi.org/10.1080/0267257X.2013.835742>
- Gadedjisso-Tossou, A., Bodjona, C. P. h., Aboudou, M. T., & Gueyie, J.-P. (2021). The Influence of CSR Practices on the Financial Performance of Microfinance Institutions in Togo. *International Journal of Economics and Finance*, 13(2), 1-52. <https://doi.org/10.5539/IJEF.V13N2P52>
- Ghezelbash, S., & Khodadadi, H. (2017). Evaluating the Impact of Promotion Price, Product Quality, Service Quality, Customer Satisfaction and Repeating Purchase Incentives (Case Study: Amiran Chain Stores). *The Journal of Internet Banking and Commerce*, 22(S8), 1-17. <https://www.icommercecentral.com/open-access/evaluating-the-impact-of-promotion-price-product-quality-service-quality-customer-satisfaction-and-repeating-purchase-incentives-case-study-amiran-chain-stores.pdf>
- Hafkesbrink, J. (2021). *Questions. Heterotrait-Monotrait Ratio of Correlations (HTMT) in assessing the discriminant validity in PLS-SEM model?* ResearchGate. <https://www.researchgate.net/post/Heterotrait-Monotrait-Ratio-of-Correlations-HTMT-in-assessing-the-discriminant-validity-in-PLS-SEM-model>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis*. New Jersey: Pearson Prentice Hall.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. *Journal of Marketing Theory and Practice*, 19(2), 139-152. <https://doi.org/10.2753/MTP1069-6679190202>
- Hair Jr, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research*, 109, 101-110. <https://doi.org/10.1016/j.jbusres.2019.11.069>
- Hair Jr, J. F., Hult, G. T. M., Ringle, C., & Sarstedt, M. (2016). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Sage Publications. <https://doi.org/10.1016/j.acclit.2016.09.003>
- Hammouda, Y. A. A., & Junoh, M. Z. M. (2019). Causative Investigation of Corporate Social Responsibility to Customers on Employees' Commitment to the Organization and Job Satisfaction in Construction Corporates. *Journal of Economics, Management and Trade*, 22(2), 1-12. <https://doi.org/10.9734/JEMT/2019/46318>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115-135. <https://doi.org/10.1007/s11747-014-0403-8>
- Herath, H. M. A. K., & Herath, H. M. S. P. (2019). Impact of Green Banking Initiatives on Customer Satisfaction: A Conceptual Model of Customer Satisfaction on Green Banking. *IOSR Journal of Business and Management (IOSR-JBM)*, 21(1), 24-35. <https://doi.org/10.9790/487X-2101032435>
- Hsu, H.-W. (2019). A Compromise Programming Model for Perishable Food Logistics under Environmental Sustainability and Customer Satisfaction. In *2019 IEEE 6th International Conference on Industrial Engineering and Applications (ICIEA)* (pp. 294-298). IEEE. <https://doi.org/10.1109/IEA.2019.8715144>
- Hume, M., & Sullivan Mort, G. (2010). The Consequence of Appraisal Emotion, Service Quality, Perceived Value and Customer Satisfaction on Repurchase Intent in the Performing Arts. *Journal of Services Marketing*, 24(2), 170-182. <https://doi.org/10.1108/08876041011031136>
- Hussain, M., Shahmoradi, A., & Turk, R. (2016). An Overview of Islamic Finance. *Journal of International Commerce, Economics and Policy*, 7(01), 1650003. <https://doi.org/10.1142/S1793993316500034>
- Iacobucci, D., Grayson, K. A., & Ostrom, A. L. (1994). The Calculus of Service Quality and Customer Satisfaction: Theoretical and Empirical Differentiation and Integration. *Advances in Services Marketing and Management*, 3(C), 1-67. [https://doi.org/10.1016/S1067-5671\(94\)03013-8](https://doi.org/10.1016/S1067-5671(94)03013-8)
- Ibrahim, H., & Najjar, F. (2008). Assessing the effects of self-congruity, attitudes and customer satisfaction on customer behavioural intentions in retail environment. *Marketing Intelligence & Planning*, 26(2), 207-227. <https://doi.org/10.1108/02634500810860638>
- Imran, M., Hamid, S., Aziz, A., & Hameed, W. (2019). The contributing factors towards e-logistic customer satisfaction: a mediating role of information Technology. *Uncertain Supply Chain Management*, 7(1), 63-72. <https://doi.org/10.5267/j.uscm.2018.5.002>
- Jamal, A., & Naser, K. (2002). Customer satisfaction and retail banking: an assessment of some of the key antecedents of customer satisfaction in retail banking. *International Journal of Bank Marketing*, 20(4), 146-160. <https://doi.org/10.1108/02652320210432936>
- Kabuye, F., Bugambiro, N., Akugizibwe, I., Nuwasiima, S., & Naigaga, S. (2019). The influence of tone at the top management level and internal audit quality on the effectiveness of risk management practices in the financial services sector. *Cogent Business & Management*, 6(1), 1704609. <https://doi.org/10.1080/23311975.2019.1704609>
- Kahf, M. (2007). Islamic Banks and Economic Development. In M. K. Hassan & M. K. Lewis (Eds.), *Handbook of Islamic Banking* (pp. 277-284). Edward Elgar Publishing. <https://doi.org/10.4337/9781847205414.00028>

- Kim, T., & Kim, S. (2021). Digital Transformation, Business Model and Metaverse. *Journal of Digital Convergence*, 19(11), 215-224. <https://doi.org/10.14400/JDC.2021.19.11.215>
- Kusdarjito, C. (2019). China's Belt and Road Initiatives and Indonesia's Maritime Fulcrum: Building scenarios for economic multipolarity in South East Asia. In *International Conference on Banking, Accounting, Management, and Economics (ICOBAME 2018)* (pp. 42-47). Atlantis Press. <https://doi.org/10.2991/icobame-18.2019.9>
- Kye, B., Han, N., Kim, E., Park, Y., & Jo, S. (2021). Educational Applications of Metaverse: Possibilities and Limitations. *Journal of Educational Evaluation for Health Professions*, 18, 1149230. <https://doi.org/10.3352/jeehp.2021.18.32>
- Lee, L.-H., Braud, T., Zhou, P., Wang, L., Xu, D., Lin, Z., Kumar, A., Bermejo, C., & Hui, P. (2021). All one needs to know about metaverse: A complete survey on technological singularity, virtual ecosystem, and research agenda. *arXiv preprint arXiv:2110.05352*. <https://doi.org/10.48550/arXiv.2110.05352>
- Lee, S.-G., Trimi, S., Byun, W. K., & Kang, M. (2011). Innovation and imitation effects in Metaverse service adoption. *Service Business*, 5, 155-172. <https://doi.org/10.1007/s11628-011-0108-8>
- Lee, S., & Heo, C. Y. (2009). Corporate social responsibility and customer satisfaction among US publicly traded hotels and restaurants. *International Journal of Hospitality Management*, 28(4), 635-637. <https://doi.org/10.1016/j.ijhm.2009.02.007>
- Li, F., Lu, H., Hou, M., Cui, K., & Darbandi, M. (2021). Customer satisfaction with bank services: The role of cloud services, security, e-learning and service quality. *Technology in Society*, 64, 101487. <https://doi.org/10.1016/j.techsoc.2020.101487>
- Lwika, T., Ojera, P. B., Mugenda, N. G., & Wachira, V. K. (2013). The impact of inventory management practices on financial performance of sugar manufacturing firms in Kenya. *International Journal of Business, Humanities and Technology*, 3(5), 75-85. https://www.ijbhtnet.com/journals/Vol_3_No_5_May_2013/9.pdf
- Mahdzan, N. S., Zainudin, R., & Au, S. F. (2017). The adoption of Islamic banking services in Malaysia. *Journal of Islamic Marketing*, 8(3), 496-512. <https://doi.org/10.1108/JIMA-08-2015-0064>
- Mat, T. Z. T., Johari, N. R. M., Aziz, M. A. A., & Hashim, M. R. (2018). Influence of Information Technology, Skills and Knowledge, and Financial Resources on Inventory Management Practices Amongst Small and Medium Retailers in Malaysia. *Asia-Pacific Management Accounting Journal*, 13(2), 173-200. <https://ir.uitm.edu.my/id/eprint/29581>
- Minta, N. K., & Stephen, O. (2017). Importance-Performance Matrix Analysis (IPMA) of Service Quality and Customer Satisfaction in the Ghanaian Banking Industry. *International Journal of Academic Research in Business and Social Sciences*, 7(7), 2222-6990. <https://doi.org/10.6007/IJARBS/v7-i7/3120>
- Mittal, V., Han, K., Lee, J.-Y., Im, B., & Sridhar, S. (2017). *Attribute-Level Satisfaction, Overall Customer Satisfaction, and Performance Outcomes in Business-to-Business Firms* (Mays Business School Research Paper No. 2964334). <https://ssrn.com/abstract=2964334>
- Mohammed, A., & Rashid, B. (2018). A conceptual model of corporate social responsibility dimensions, brand image, and customer satisfaction in Malaysian hotel industry. *Kasetsart Journal of Social Sciences*, 39(2), 358-364. <https://doi.org/10.1016/j.kjss.2018.04.001>
- Neuman, W. L. (2013). *Social Research Methods: Qualitative and Quantitative Approaches*. Pearson Education.
- Ofori-Boateng, I., & Agyei, S. D. (2020). Effect of Customer Satisfaction and Marketing Communication Mix on Customers' Loyalty in the Ghanaian Banking Industry. *European Journal of Management and Marketing Studies*, 5(4), 22-40. <https://doi.org/10.46827/ejms.v5i4.891>
- Ong, K. S., Nguyen, B., & Syed Alwi, S. F. (2017). Consumer-based virtual brand personality (CBVBP), customer satisfaction and brand loyalty in the online banking industry. *International Journal of Bank Marketing*, 35(3), 370-390. <https://doi.org/10.1108/IJBM-04-2016-0054>
- Popp, B., & Woratschek, H. (2017). Consumer-brand identification revisited: An integrative framework of brand identification, customer satisfaction, and price image and their role for brand loyalty and word of mouth. *Journal of Brand Management*, 24(3), 250-270. <https://doi.org/10.1057/s41262-017-0033-9>
- Rahbar, E., & Abdul Wahid, N. (2011). Investigation of Green Marketing Tools' Effect on Consumers' Purchase Behavior. *Business Strategy Series*, 12(2), 73-83. <https://doi.org/10.1108/17515631111114877>
- Rahbar, E., & Wahid, N. A. (2010). The Malaysian Consumer and the Environment: Purchase Behavior. *Global Business and Management Research: An International Journal*, 2(4), 323-336. <https://www.proquest.com/openview/0a89b1fb26c141cd044ca2442cbf05f0>
- Rathore, B. (2018). Metaverse Marketing: Novel Challenges, Opportunities, and Strategic Approaches. *Eduzone: International Peer Reviewed/Refereed Multidisciplinary Journal*, 7(2), 72-82. <https://www.eduzonejournal.com/index.php/eiprmj/article/view/344>
- Sani, H. S., Amboningtyas, D., & Yulianeu, Y. (2018). Comparative Analysis of The Financial Performance of Banks Bca and Bank Mega (Studies On Banking Companies 2012-2016 Listed In Bei). *Journal of Management*, 4(4). <https://jurnal.unpand.ac.id/index.php/MS/article/view/924>
- Shaikh, I. M., Qureshi, M. A., Noordin, K., Shaikh, J. M., Khan, A., & Shahbaz, M. S. (2020). Acceptance of Islamic financial technology (FinTech) banking services by Malaysian users: an extension of technology acceptance model. *Foresight*, 22(3), 367-383. <https://doi.org/10.1108/FS-12-2019-0105>
- Shen, B., Tan, W., Guo, J., Zhao, L., & Qin, P. (2021). How to Promote User Purchase in Metaverse? A Systematic Literature Review on Consumer Behavior Research and Virtual Commerce Application Design. *Applied Sciences*, 11(23), 11087. <https://doi.org/10.3390/app112311087>
- Singh, P., & Mishra, S. (2020). Comparing the Various Monetary and Non-Monetary Factors Influencing the Happiness of Bank Employees (In Context to the Private Banking Sector in the State of Rajasthan). *TEST Engineering & Management*, 82, 13102-13110. <https://testmagazine.biz/index.php/testmagazine/article/download/2940/2581/5342>
- Strijker, D., Bosworth, G., & Bouter, G. (2020). Research methods in rural studies: Qualitative, quantitative and mixed methods. *Journal of Rural Studies*, 78, 262-270. <https://doi.org/10.1016/j.jrurstud.2020.06.007>
- Taylor, S. A., & Baker, T. L. (1994). An Assessment of the Relationship Between Service Quality and Customer Satisfaction in the Formation of Consumers' Purchase Intentions. *Journal of Retailing*, 70(2), 163-178. [https://doi.org/10.1016/0022-4359\(94\)90013-2](https://doi.org/10.1016/0022-4359(94)90013-2)
- Yusuf, S., Hafeez-Baig, A., Soar, J., & Teik, D. O. L. (2020). PLS-SEM path analysis to determine the predictive relevance of e-Health readiness assessment model. *Health and Technology*, 10, 1497-1513. <https://doi.org/10.1007/s12553-020-00484-9>

- Zameer, H., Wang, Y., Yasmeen, H., Mofrad, A. A., & Waheed, A. (2018). Corporate Image and Customer Satisfaction by Virtue of Employee Engagement. *Human Systems Management*, 37(2), 233-248. <https://doi.org/10.3233/HSM-17174>
- Zeelenberg, M., & Pieters, R. (2004). Beyond Valence in Customer Dissatisfaction: a Review and New Findings on Behavioral Responses to Regret and Disappointment in Failed Services. *Journal of business Research*, 57(4), 445-455. [https://doi.org/10.1016/S0148-2963\(02\)00278-3](https://doi.org/10.1016/S0148-2963(02)00278-3)
- Zulaikah, S., Larasati, D. A., & Harymawan, I. (2019). Government Ownership, Human Resources Disclosure, and Firm Performance: Evidence from the Banking Industry in Indonesia. *International Journal of Innovation, Creativity and Change*, 9(8), 238-264. https://www.ijicc.net/images/vol9iss8/9816_Zulaikah_2019_E_R.pdf