E-proceeding 2nd SENRIABDI 2022
Seminar Nasional Hasil Riset dan Pengabdian kepada Masyarakat
Universitas Sahid Surakarta Vol. 2 Edisi Desember 2022 Hal. 171-185

Analysis of Factors Affecting Mobile Game Service Adoption in Generation Z and Millennials in Indonesia

Erbin Chandra[1], Darwin Lie[2], Julyanthry[3], Sherly[4], Acai Sudirman[5]

[2]Program Studi Magister Ilmu Manajemen, Sekolah Tinggi Ilmu Ekonomi Sultan Agung
[1345]Program Studi Manajemen, Sekolah Tinggi Ilmu Ekonomi Sultan Agung

e-mail: [1]erbinchandra@stiesultanagung.ac.id, [2]darwin@stiesultanagung.ac.id, [3]julyanthry@stiesultanagung.ac.id, [4]sherly@stiesultanagung.ac.id, [5]acaivenly@stiesultanagung.ac.id

Abstrak

Latar belakang: Kemajuan teknologi yang semakin berkembang dari waktu ke waktu membuat para developer game berlomba-lomba untuk menciptakan game-game terbaru yang menarik perhatian para pecinta game. Munculnya berbagai genre game mendorong tingginya niat penggunaan dan perilaku penggunaan bagi pecinta game sejati.

Tujuan: Penelitian ini bertujuan untuk menganalisis faktor-faktor yang mempengaruhi adopsi layanan mobile game pada kelompok Generasi Z dan Milenial di Indonesia.

Metode: Instrumen penelitian menggunakan kuesioner online yang dibagikan kepada 210 responden yang tidak lain adalah pengguna layanan mobile game dari generasi Z dan generasi Milenial. Proses pengumpulan data dilakukan pada periode Maret hingga Mei 2021. Selanjutnya peneliti menguji hipotesis menggunakan Structural Equation Modeling (SEM) berbasis varian yang disebut Partial Least Square (PLS) dan aplikasi SmartPLS versi 3.0 sebagai alat bantu untuk menganalisisnya.

Hasil: Penelitian ini menyimpulkan bahwa persepsi kemudahan penggunaan, persepsi kenikmatan, dan kondisi memfasilitasi berpengaruh positif dan signifikan terhadap niat penggunaan. Kemudian hasil penelitian ini juga mengkonfirmasi kondisi memfasilitasi, kebiasaan dan niat penggunaan juga memiliki pengaruh positif dan signifikan terhadap perilaku penggunaan.

Kesimpulan: Kami percaya bahwa karakteristik Generasi Z dan Milenial adalah kelompok pengguna yang peka terhadap perkembangan teknologi, terutama pada genre game tertentu. Bagi pengembang game, hal ini dapat menjadi pertimbangan untuk perbaikan layanan game mobile kedepannya.

Kata Kunci: Layanan Mobile Game, Usage Intention, User Behavior, Generasi Z, Generasi Milenial

Abstract
Background: Technological advances that are growing from time to time make game developers vying to create the latest games that attract the attention of game lovers. The emergence of various game genres encourages high usage intentions and usage behavior for true game lovers.
Objective: This study is here to analyze the factors that influence the adoption of mobile game services in the Generation Z and Millennial groups in Indonesia.
Methods: The research instrument used an online questionnaire distributed to 210 respondents who were none other than users of mobile game services from the Generation Z and Millennial generations. The data collection process was carried out in the period from March to May 2021. Next, the researchers tested the hypothesis using a variant-based Structural Equation Modeling (SEM) called Partial Least Square (PLS) and the SmartPLS version 3.0 application as a tool to analyze it.
Results: This research concludes that perceived ease of use, perceived enjoyment, and facilitating conditions have a positive and significant effect on usage intention. Then the results of this research also confirm facilitating conditions, habit and usage intention also have a positive and significant influence on use behavior.
Conclusion: We believe that the characteristics of Generation Z and Millennials are user groups who are sensitive to technological developments, especially in specific game genres. For game developers, this can be a consideration for improving mobile game services in the future.
Keywords: Mobile Game Service, Usage Intention, User Behavior, Generation Z, Millennial Generation

Introduction

The digital era provides convenience with various available technologies, but not all the latest technology can be easily accessed by the public, because this way of recognizing the newest technology requires time and adaptation [1]. The gaming industry is the core industry of the highly value-creating cultural content business. Based on advanced wireless communication and device technology development, the market for mobile content business is growing at an unprecedented rate [2]. One of the most popular internet applications is online games. Online games include entertainment to relieve fatigue from activities that have been carried out, besides that online games can also increase user confidence [3]. As one of the fastest growing mobile content businesses, many research institutes predict the mobile game market will grow faster [4]. The game genres also vary by offering various exciting visuals and sometimes even playing them requires quite capable skills. The game business is one of the entertainment businesses that creates high value based on interactivity and soul-stimulating game characters. Online games have developed because of the significant advances in network technology via the internet, a combination of entertainment and network technology [5]

Manufacturers, retailers, and service providers make up the gaming business. Game developers produce game material that enables players to play pre-programmed story-driven games [6]. Offline and online channels are used by game merchants to distribute games, and the development of sophisticated network infrastructure makes the process easier [7]. Gaming accessories and value-added services such as game platforms, game characters, and avatars are available from game service providers [2]. Of course, the rapid development of game content cannot be separated from the increasing number of users of mobile game services today. We recognize that Generation Z and Millennials have an essential role in the rapid growth of these mobile game services [8]. Generation Z likes more practical problem solving. They are reluctant to take a long process to examine a problem. This is because they were born in an instant world. Therefore, the instantaneous characteristics are very suitable for the need for instant services, such as the features provided by mobile game services [6]. Furthermore, the Millennial generation is also susceptible to technological developments [9]. The millennial generation is considered a generation that is easy to adapt to many things. They see that everything is easy to change quickly, one of which is technological developments [10]. Therefore, it takes the ability to adapt to not lag behind others, including adaptation to using mobile game services [11].

Several previous research results have examined and studied how usage behavior adopts mobile game applications. Research [11] concludes that someone's behavior is addicted to playing mobile game services based on users' diverse lifestyles and have different attitudes. The findings show that playing games is not just a matter of playing games on mobile devices, but a mindset that supports mobility to change the nature of the game from its social aspect. Further, research results [12] by using the TAM approach, we estimate the adoption of mobile game service usage due to the enjoyment of playing the game and the individual's attitude to accept the game. Research [9] research focus on obtaining massively multiplayer online games argues that continuance intentions have been influenced by perceived enjoyment. This condition shows that the main construction of a person's willingness to accept multiplayer online games is based on the convenience and enjoyment factors provided by the mobile game service features. Research from [13] also conveyed that facilitating conditions significantly shape usage behavior within a certain period. Furthermore, the habits that arise from within users of using mobile game services in everyday life are triggers for high usage intentions and will ultimately affect future usage behavior [14].

This research is here to facilitate previous research relevant to the substance of the study of the adoption of mobile game services in the generation Z and Millennial generation groups. We believe that the characteristics of Generation Z and Millennials are user groups who are sensitive to technological developments, especially in specific game genres. This study explores the impact of the convenience offered by several mobile game service applications, the implications of perceived

comfort when using mobile game services, additional features provided by mobile game services, and internal factors of users such as habits of using mobile game services. This construction is believed to form strong usage intentions and usage behaviors for Generation Z and Millennials for the adoption of mobile game services. The urgency of this research is to find out what factors are dominantly influencing usage intention and use behavior of mobile game services in terms of perceived ease of use, perceived enjoyment, facilitating conditions and habit aspects. It is hoped that the research findings will contribute to the development of the homeland game industry for the development and improvement of mobile game services in the future.

1. Perceived Ease of Use
   The new technology is intended to offer consumers convenience and ease of transacting, as well as satisfaction [8]. The game application's system compatibility, usability, and simplicity of use are all important elements in the acceptance of mobile gaming services [15]; [16]. Individuals' performance expectations may be defined as the degree to which they think that utilizing the system will assist them in achieving the desired results (Angelina & Aswin Rahadi, 2020). Ease of use perceived by consumers refers to how the use of a system obtains additional information based on the suitability of the user's skill level and knowledge [17]. Based on the results of previous research [18] with the research theme understanding of behavioral intentions to use 3G mobile phones, it is concluded that Perceived ease of use has a positive and significant relationship with usage intention. Then the results of research from [5] with a research focus examining job seekers' intentions with online games as an alternative to finding new jobs concluded that Perceived ease of use has a positive and significant relationship with usage intention. Therefore, based on several previous research results, this study is carried out in developing hypotheses:
   H1: Perceived ease of use affects usage intention

2. Perceived Enjoyment
   According to [19], the first researcher to explore the impact of enjoyment of adopting a new technology with an intention-oriented behavior with the TAM model explaining enjoyment is a performance consequence obtained when using a technology service. In adopting mobile game service technology, every user expects satisfaction that comes from enjoyment in playing the game [6]. When someone feels satisfaction when playing a game, then that person tends to play it again in the future, because the higher the perception of the pleasure that a person feels, the higher the intention to repurchase [20]. This situation reflects the greater the amount of time a person spends playing games where virtual products are sold, the more likely that person will buy the products offered [21]. Studies that

examine the relationship of perceived enjoyment tousage intention has previously been investigated, as in the [22] with a research focus on the role of enjoyment on the adoption of virtual games found a positive and significant relationship between the two. Then study [7] with a research focus on why paying premium in freemium services in free-to-play games, concluded perceived enjoyment has a significant relationship withusage intentions. Therefore, based on several previous research results, this study is carried out in developing hypotheses:

H2: Perceived enjoyment affects usage intention

3. Facilitating Conditions
   Facilitating conditions are described by the ability of a system to meet its needs such as expertise, knowledge, and money directed at the adoption of an information technology [23]. In the context of mobile game services,a state that reflects the facilitating process is defined as a specific state of a system that supports use based on user perceptions [24] and generally relates to the degree to which an individual believes that the organizational and technical infrastructure of a system has adequate facilities available [25]. Someone will feel in a mobile game service if there is availability that supports the system, such as device availability and easy-to-understand instructions for use [26]. According to research results [3] with the research context towards the acceptance model of educational games, it is concluded that facilitating conditions have a significant relationship with usage intention. More research results [27] with the research focus extending the UTAUT2 model based on the role of personalization in the continuous use intention of mobile news applications in India, it is concluded that facilitating conditions have a significant relationship with usage intention. In the context of the relationship between facilitating conditions and use behavior, research results from [28], examine the determinants of students' intentions to use a simulation game business, concluding that facilitating conditions have a significant relationship with use behavior. Then research [13] with the theme of online game acceptance research on mobile devices: Applications based on the UTAUT2 model, conclude that facilitating conditions have a significant relationship with use behavior. Therefore, based on several previous research results, this study is carried out in developing hypotheses:
   H3: Facilitating conditions affect usage intention
   H4: Facilitating conditions affect use behavior

4. Habit
   The habit factor in a technology-based information system service is oriented to how individuals tend to automatically adopt behavior based on previous experience of use [29]. In the context of customers, habits are critical in the use of technology, particularly in a variety of circumstances

[30]. Individual routines or technology-assisted behavior are referred to as user habits [31]. The user's habitual construction of perceptions that reflect the results of previous experiences are generally associated with knowledge, age, and gender with intentional behavior and usage behavior [32]. Research result [33] with the research on the impact of gaming habits on motivation to achieve game goals, it shows that habit has a significant influence on use behavior. Further research results from [34], concluded that the habit factor is the most crucial element of a person to shape the behavior of the use of a technology in the subsequent use. Therefore, based on several previous research results, this study is carried out in developing hypotheses:
H5: Habit affects use behavior

5. Usage Intention
   Intention to use is an indicator used to measure the portrait of individual behavior based on the influence of the desired behavior [35]. Individuals who adopt a technology service will consider the impact of actual behavior before they decide to take action related to engaging in future usage behavior [36]. Therefore, use intention is a cognitive representative of a person to perform a specific behavior based on experience from previous use [37]. A person who considers the consequences of their actions before deciding whether or not to engage in particular activities is a component of the past use intention experience [38]. Research results from [39], concluded that the role of usage intentions in encouraging a person's behavior to reuse a technology service is enormous. Someone will tend to reuse due to high usage intentions for the experience gained while using the service. Research from [40] also confirmed the same results regarding the significant effect of usage intention on use behavior. Therefore, based on several previous research results, this study is carried out in developing hypotheses:
   H6: Usage intention affects use behavior

6. Use Behavior
   Consumers who are more inclined to embrace a new technology and promote it to others are more likely to become adopters [41]. The frequency of actual use by users is reflected through the ability to shape future solid usage behaviors [42]. Usage behavior is reflected through the ability to predict appropriate behavior as long as the person can take action voluntarily [43]. Furthermore [44], states that user behavior reflects the state of a person to perform a behavior based on a willingness to try and be motivated to do so. If a person intends to perform a behavior, then the person will do it [45]. If users feel great benefits from using a technology service, then in the future these users will form more assertive usage behaviors and continue to use them repeatedly [29].

Method

Causality quantitative approach is used in this study to answer the formulation of research problems and research hypotheses. The process and mechanism of data collection was carried out from February to April 2021 and then a questionnaire was used as an instrument of this research which was then distributed to respondents online. The population choice in this study is mobile game service users among Generation Z and Millennials in Indonesia. The sample size was determined by purposive sampling method with a sample size of 210 respondents. Next, the researcher tested the hypothesis using Structural Equation Modeling (SEM) based on a variant called Partial Least Square (PLS) and the SmartPLS version 3.0 application as a tool to analyze it. The operational definition of this research variable consists of endogenous variables and exogenous variables (See Table 2).

Results and Discussion

The questionnaire was distributed online via social media of WhatsApp and Telegram. Social media was chosen because many of the target respondents actively use social media in their daily lives. Of the 254 responses received, only 210 data (82.68%) were considered valid for the study. A total of 145 male respondents (69.05%) and 65 female respondents (30.95%). Then it is known that Generation Z dominates most mobile game service users with 133 users (63.34%). After that, it is known that users who have a professional background as students dominate the use of mobile game services (40.48%) with the most widely played type of game being Multiplayer Online Battle Arena (24.76%), such as Mobile Legends (See Table 1).

Table 1. General Profiles Of The Respondents

Category	Details	Frequency	Percentage (%)
Sex	Male	145	69.05
	female	65	30.95
Age (years)	15-19	64	30.48
	20-24	69	32.86
	25-29	42	20
	30-34	25	11.90
	35-39	10	4.76
Occupation	Student	85	40.48
	College Student	66	31.43
	Employee	38	18.09
	Entrepreneur	12	5.71
	Others	9	4.29
Game Genre	Battle Royale Games	25	11.90
	Multiplayer Online Battle Arena	52	24.76
	First Person Shooter	10	4.77
	Real-Time Strategy	22	10.48
	Vehicle Simulation	11	5.23
	Fighting Games	26	12.39
	Life Simulation Game	14	6.67
	Sports Games	21	10

	Role-Playing Game	12	5.71
	Adventure Games	17	8.09

Source: Data Processing Results (2022)

Outer Model Measurement

Table 2. Validity, reliability and R-Square test

Variables	Items	Outer Loading	Average Variance Extracted (AVE)	Composite Reliability	Cronbach's Alpha
Perceived Ease of Use			**0.631**	**0.872**	**0.805**
	Easy to learn mobile games	0.789			
	Easy to understand mobile games	0.816			
	Easy to effortless mobile games	0.848			
	Easy to use mobile games	0.719			
Perceived Enjoyment			**0.712**	**0.908**	**0.863**
	Playing mobile games is enjoyable	0.901			
	Playing mobile games is fun	0.857			
	Playing mobile games is entertaining	0.870			
	Playing mobile games is pleasant	0.738			
Facilitating Conditions			**0.778**	**0.913**	**0.858**
	Resources necessary to use mobile games	0.875			
	Knowledge necessary to use mobile games	0.929			
	Mobile games compatible with other technologies	0.840			
Habit			**0.767**	**0.907**	**0.843**
	Mobile games is one of my habits	0.902			
	Mobile games is quite automatic	0.954			
	Mobile games are natural	0.759			
Usage Intention			**0.753**	**0.901**	**0.836**
	Given the chance mobile games	0.878			
	Continue use in the future mobile games	0.885			
	Intention to use mobile games	0.838			
Use Behavior			**0.741**	**0.919**	**0.883**
	Regularly play mobile games	0.789			
	Every day play mobile games	0.822			
	Often play mobile games	0.923			
	Prefer to play mobile games	0.903			

Discriminant Validity

	Facilitating Conditions	Facilitating Conditions	Perceived Ease of Use	Perceived Enjoyment	Usage Intention	Use Behavior
Facilitating Conditions	0.882					
Habit	0.347	0.876				
Perceived Ease of Use	0.506	0.301	0.794			
Perceived Enjoyment	0.342	0.334	0.631	0.844		
Usage Intention	0.547	0.378	0.567	0.476	0.868	

Use Behavior	0.435	0.437	0.634	0.721	0.610	0.861

R-Square		
	R-square	***R-square Adjusted***
Usage Intention	0.433	0.424
Use Behavior	0.429	0.421

Source: Data Processing Results (2022)

The value of each loading factor and AVE on the variable indicators of perceived ease of use, perceived enjoyment, facilitating conditions, habit, usage intention and use behavior is above 0.7 for the loading factor and above 0.5 for AVE. Furthermore, the value for each of the above reliability values obtained for each research variable is above 0.7 and for Cronbach's alpha values obtained values for each variable are above 0.60 this indicates that all research variables have good reliability value. Judging from the R-square value of the endogenous variables, the value obtained is 0.433 for usage intention, this shows that the overall ability of exogenous variables to explain usage intention is moderate [46].

Hypotheses Test

Furthermore, to prove the hypothesis testing, a significance test was carried out to determine the relationship between the exogenous variables and the endogenous variable. The significance criterion was seen from the p-value. With a significance level of 5%, if the p-value between the exogenous variables and the endogenous variable is less than 0.05, the exogenous variables significantly affect the endogenous variable. In contrast, if the value is higher than 0.05, it means that the exogenous variables do not have a significant effect in building the endogenous variable. The results of the hypothesis test are presented in table 3 below:

Table 3. Hypotheses Result

Hypoteses	**Coefficients**	***t-Statistics***	***P-Value***	**Result**
Perceived Ease of Use→ Usage Intention (H1)	0.277	4.038	0.000	**Accepted**
Perceived Enjoyment→ Usage Intention (H2)	0.184	3.4345	0.001	**Accepted**
Facilitating Conditions→ Usage Intention (H3)	0.344	5.255	0.000	**Accepted**
Facilitating Conditions→ Use Behavior (H4)	0.100	1,634	0.103	**Accepted**
Habit→ Use Behavior (H5)	0.224	4.753	0.000	**Accepted**
Usage Intention→Use Behavior (H6)	0.471	7,681	0.000	**Accepted**

Source: Data Processing Results (2022)

Discussion

Following the test results on the first hypothesis (H1), the results of data analysis concluded that perceived ease of use had a positive and significant effect on usage intention. This indicates that the ease of enjoying mobile game services encourages

strong usage intentions in the future. The majority of mobile game service users who come from generation Z consider that the current existence of mobile game services has met their expectations. The ease of accessing additional features in mobile game services has formed a paradigm that leads to justifying from within them that mobile game services are an alternative to fill their vacant time. Furthermore, the second hypothesis (H2), stated that perceived enjoyment has a positive and significant effect on usage intention. These results prove that the convenience factor when using mobile game services is very important to encourage usage intentions, so the implication is someone who wants to continue playing online games that spend a lot of time and the individual concerned may be unable to control or control it. The comfort factor when playing online games becomes the most important activity in an individual's life and dominates thoughts, feelings (always feel like doing it), and behavior (doing too much).

The result of the next hypothesis, namely the third hypothesis (H3), concludes that facilitating conditions have a positive and significant effect on usage intention. In online-based games, facilities are often presented with content that stimulates the adrenaline of the players. In addition, some challenges are constantly increasing at each level of the game. This is certainly an attraction and a risk for people who are psychologically happy to seek challenges. In addition, maximum facilities such as television, game consoles and others are factors that cause users of mobile game services to intend to use them in the future. Then this study also confirmed the fourth hypothesis (H4), which states that facilitating conditions have a positive and significant effect on use behavior. This condition proves that the facilities offered by mobile game services are very vulnerable to the formation of subsequent usage behavior. If users feel high expectations for the mobile game service, they will automatically form strong usage behavior. Players will be brought into a new atmosphere that is presented through a game plot and then immersed in it so that they can forget for a moment the burdens that exist in their daily lives. Then the availability of freemium types of mobile game services, causes a high download spike in mobile game services and will ultimately encourage high usage behavior. This condition proves that the facilities offered by mobile game services are very vulnerable to the formation of subsequent usage behavior. If users feel high expectations for the mobile game service, they will automatically form strong usage behavior.

Furthermore, the fifth hypothesis (H5) results confirm that habit has a positive and significant effect on use behavior. These results prove that someone addicted to playing mobile game services will apply long-term habits to form strong usage behavior. The majority of users when playing online games make them feel happy because they get psychological satisfaction. Most games are designed in such a way

as to keep gamers curious and chasing high scores, so that they often lose track of time and even pause for a moment. Playing mobile game online services excessively causes the emergence of an obsession to win and become a figure of imagination in the game as desired, so this is what causes the habit factor to trigger the behavior of its use. Then the results of this study also confirm the sixth hypothesis (H6), which states that usage intention has a positive and significant effect on use behavior. Of all the hypotheses developed in this study, the use intention factor is the most powerful element to encourage the formation of mobile game service usage behavior. The majority of users from Generation Z and Millennials think that playing mobile game services makes them feel better and will eventually eliminate boredom from within themselves. The majority of users think that playing games can escape from the real world to another world they want. This is characterized by players who sometimes get lost or feel like they are in the world of the video game which is present in the game story itself and also gives a feeling of pleasure. This is what triggers strong usage behavior to adopt mobile game services continuously.

Conclusions and suggestions

This study confirms that the six hypotheses developed are acceptable by showing significant results between perceived ease of use, perceived enjoyment and facilitating conditions on usage intention and significant results between facilitating conditions, habit and usage intention on use behavior. Furthermore, based on the characteristics of the respondents, it is known that Generation Z dominates the majority of mobile game service users with a total of 133 users (63.34%). After that, it is known that users who have a professional background as students dominate the use of mobile game services (40.48%) with the most widely played type of game being Multiplayer Online Battle Arena (24.76%). This research illustrates that Generation Z and Millennials can well receive the acceptance of technology in the form of mobile game services. The availability of game services, free and without paying any service fees, makes mobile game services one of the prima donna choices for users to fill empty time in everyday life. Suggestions for further research to increase the number of samples that are able to represent mobile game users as a whole and for further studies to use other approaches in predicting mobile game usage behavior, for example with the TRA, TPB, and UTAUT2 models.

References

[1] K. Juhri and C. K. Dewi, "Kepercayaan Dan Penerimaan Layanan Mobile Money T-Cash Di Bandung Dengan Pendekatan Technology Acceptance Model (Tam)," *J. Pro Bisnis*, vol. 10, no. 1, pp. 36–51, 2017.

[2] S. Lee and C. F. Quan, "Factors Affecting Chinese Ubiquitous Game Service Usage Intention," *Int. J. Mob. Commun.*, vol. 11, no. 2, pp. 194–212, 2013, doi: 10.1504/IJMC.2013.052641.

[3] R. Ibrahim, K. Khalil, and A. Jaafar, "Towards Educational Games Acceptance Model (EGAM): A Revised Unified Theory Of Acceptance And Use Of Technology (UTAUT)," *Int. J. Res. Rev. Comput. Sci.*, vol. 2, no. 3, pp. 839–847, 2011, [Online]. Available: http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Towards+Educational+Games+Acceptance+Model+(+EGAM+):+A+Revised+Unified+Theory+of+Acceptance+and+Use+of+Technology+(+UTAUT+)#0.

[4] T. Teo, "Factors Influencing Teachers' Intention To Use Technology: Model Development And Test," *Comput. Educ.*, vol. 57, no. 4, pp. 2432–2440, 2011, doi: 10.1016/j.compedu.2011.06.008.

[5] S. Laumer, A. Eckhardt, and T. Weitzel, "Online Gaming to Find a New Job – Examining Job Seekers' Intention to Use Serious Games as a Self-Assessment Tool," *Ger. J. Res. Hum. Resour. Manag.*, vol. 26, no. 3, pp. 99–116, 20212, doi: 10.1688/1862-0000.

[6] K. C. Gianto, "Pengaruh Perceived Enjoyment Terhadap Continuous Use Intention Dan Purchase Intention for Virtual Goods Pada Game Pubg Mobile Di Kalangan Mahasiswa Universitas Kristen Petra," *AGORA*, vol. 8, no. 2, pp. 2–9, 2020.

[7] J. Hamari, N. Hanner, and J. Koivisto, "'Why Pay Premium In Freemium Services?' A Study On Perceived Value, Continued Use And Purchase Intentions In Free-To-Play Games," *Int. J. Inf. Manage.*, vol. 51, pp. 1–15, 2020, doi: 10.1016/j.ijinfomgt.2019.102040.

[8] F. Halim, Efendi, M. Butarbutar, A. R. Malau, and A. Sudirman, "Constituents Driving Interest in Using E-Wallets in Generation Z," in *Proceeding on International Conference of Science Management Art Research Technology*, 2020, vol. 1, no. 1, pp. 101–116, doi: 10.31098/ic-smart.v1i1.32.

[9] M. Linares, M. Dolores Gallego, and S. Bueno, "Proposing A Tam-Sdt-Based Model To Examine The User Acceptance Of Massively Multiplayer Online Games," *Int. J. Environ. Res. Public Health*, vol. 18, no. 7, 2021, doi: 10.3390/ijerph18073687.

[10] Y. Welly, S. Supitriyani, Y. Yusnaini, and A. Sudirman, "Factors of Using Non-Cash Payments to the Consumption Level of Students in Pematangsiantar City," *J. Bisnis dan Manaj.*, vol. 7, no. 1, pp. 61–68, 2020, doi: 10.26905/jbm.v7i1.4041.

[11] T. P. Liang and Y. H. Yeh, "Effect Of Use Contexts On The Continuous Use Of Mobile Services: The Case Of Mobile Games," *Pers. Ubiquitous Comput.*, vol. 15, no. 2, pp. 187–196, 2011, doi: 10.1007/s00779-010-0300-1.

[12] I. Ha, Y. Yoon, and M. Choi, "Determinants Of Adoption Of Mobile Games Under Mobile Broadband Wireless Access Environment," *Inf. Manag.*, vol. 44, no. 3, pp. 276–286, 2007, doi: 10.1016/j.im.2007.01.001.

[13] P. Ramírez-Correa, F. J. Rondán-Cataluña, J. Arenas-Gaitán, and F. Martín-Velicia, "Analysing The Acceptation Of Online Games In Mobile Devices: An Application of UTAUT2," *J. Retail. Consum. Serv.*, vol. 50, no. December 2018, pp. 85–93, 2019, doi: 10.1016/j.jretconser.2019.04.018.

[14] K. Nikolopoulou, V. Gialamas, and K. Lavidas, "Acceptance Of Mobile Phone By University Students For Their Studies: An Investigation Applying UTAUT2 Model," *Educ. Inf. Technol.*, vol. 1, no. 1, pp. 1–17, 2020, doi: 10.1007/s10639-020-10157-9.

[15] W. W. N. Wan, C. L. Luk, K. S. Fam, P. Wu, and C. W. C. Chow, "Understanding the Acceptance of Mobile SMS Advertising among Young Chinese Consumers," *Psychol. Mark.*, vol. 29, no. 5, pp. 365–377, 2012, doi: 10.1002/mar.

[16] D. Chawla and H. Joshi, "Consumer attitude and intention to adopt mobile wallet in India – An empirical study," *Int. J. Bank Mark.*, vol. 37, no. 7, pp. 1590–1618, 2019, doi: 10.1108/IJBM-09-2018-0256.

[17] S. E. Chang, W. C. Shen, and C. H. Yeh, "A Comparative Study Of User Intention To Recommend Content On Mobile Social Networks," *Multimed. Tools Appl.*, vol. 76, no. 4, pp. 5399–5417, 2017, doi: 10.1007/s11042-016-3966-1.

[18] Y. F. Kuo and S. N. Yen, "Towards An Understanding Of The Behavioral Intention To Use 3G Mobile Value-Added Services," *Comput. Human Behav.*, vol. 25, no. 1, pp. 103–110, 2009, doi: 10.1016/j.chb.2008.07.007.

[19] F. D. Davis, R. P. Bagozzi, and P. R. Warshaw, "User Acceptance of Computer Technology: A Comparison of Two Theoretical Models," *Manage. Sci.*, vol. 35, no. 8, pp. 982–1003, 1989, doi: 10.1287/mnsc.35.8.982.

[20] J. Rajalie and V. Briliana, "Pengaruh Trust, Perceived Usefulness, Satisfaction Dan Perceived Enjoyment Terhadap Online Repurchase Intention," *J. Bisnis Dan Akunt.*, vol. 16, no. 1, pp. 1–9, 2014, [Online]. Available: http://jurnaltsm.id/index.php/JBA/article/view/92.

[21] G. R. Jarboe and C. D. McDaniel, "A Profile Of Browsers In Regional Shopping Malls," *J. Acad. Mark. Sci.*, vol. 15, no. 1, pp. 46–53, 1987, doi: 10.1007/BF02721953.

[22] Y. Jang and E. Park, "An Adoption Model For Virtual Reality Games: The Roles Of Presence And Enjoyment," *Telemat. Informatics*, vol. 42, no. May, p. 101239, 2019, doi: 10.1016/j.tele.2019.101239.

[23] T. Zhou, "Exploring Mobile User Acceptance Based on UTAUT and Contextual Offering," *Proc. Int. Symp. Electron. Commer. Secur. ISECS 2008*, vol. 1, no. 1, pp. 241–245, 2008, doi: 10.1109/ISECS.2008.10.

[24] K. Ghalandari, "The Effect of Performance Expectancy, Effort Expectancy, Social Influence and Facilitating Conditions on Acceptance of E-Banking Services in Iran: the Moderating Role of Age and Gender," *Middle-East J. Sci. Res.*, vol. 12, no. 6, pp. 801–807, 2012, doi: 10.5829/idosi.mejsr.2012.12.6.2536.

[25] K. Pitchayadejanant, "Intention to use of Smart phone in Bangkok Extended UTAUT Model by Perceived Value," in *International Conference on Management*, 2011, pp. 160–172.

[26] L. Wan, S. Xie, and A. Shu, "Toward an Understanding of University Students' Continued Intention to Use MOOCs: When UTAUT Model Meets TTF Model," *SAGE Open*, vol. 10, no. 3, 2020, doi: 10.1177/2158244020941858.

[27] Y. Cheng, S. Sharma, P. Sharma, and K. M. M. C. B. Kulathunga, "Role Of

Personalization In Continuous Use Intention Of Mobile News Apps In India: Extending The UTAUT2 Model," *Inf.*, vol. 11, no. 1, pp. 1–23, 2020, doi: 10.3390/info11010033.

[28] Y. Y. Wang, Y. S. Wang, and S. E. Jian, "Investigating the Determinants of Students' Intention to Use Business Simulation Games," *J. Educ. Comput. Res.*, vol. 58, no. 2, pp. 433–458, 2019, doi: 10.1177/0735633119865047.

[29] V. Bhatiasevi, "An Extended UTAUT Model To Explain The Adoption Of Mobile Banking," *Inf. Dev.*, vol. 32, no. 4, pp. 799–814, 2015, doi: 10.1177/0266666915570764.

[30] R. Ambarwati, Y. D. Harja, and S. Thamrin, "The Role of Facilitating Conditions and User Habits: A Case of Indonesian Online Learning Platform," *J. Asian Financ. Econ. Bus.*, vol. 7, no. 10, pp. 481–489, 2020, doi: 10.13106/jafeb.2020.vol7.no10.481.

[31] A. M. Baabdullah, "Factors Influencing Adoption of Mobile Social Network Games (M-SNGs): The Role of Awareness," *Inf. Syst. Front.*, vol. 22, no. 2, pp. 411–427, 2020, doi: 10.1007/s10796-018-9868-1.

[32] A. O. Hariyanti, S. Hidayatullah, and D. A. Prasetya, "Analysis of the Acceptance and Use of Mobile Banking Services Using the Unified Theory of Acceptance and Use of Technology (Case Study of Bank Jatim Pasuruan Branch)," *Res. J. Adv. Eng. Sci.*, vol. 5, no. 1, pp. 254–262, 2020.

[33] G. Y. Liao, F. C. Tseng, T. C. E. Cheng, and C. I. Teng, "Impact Of Gaming Habits On Motivation To Attain Gaming Goals, Perceived Price Fairness, And Online Gamer Loyalty: Perspective Of Consistency Principle," *Telemat. Informatics*, vol. 49, no. September 2019, p. 101367, 2020, doi: 10.1016/j.tele.2020.101367.

[34] A. L. Rebar, B. Gardner, and B. Verplanken, "Habit in Exercise Behavior," *Handb. Sport Psychol.*, vol. 2, pp. 986–998, 2020, doi: 10.1002/9781119568124.ch48.

[35] H. M. Jeon, F. Ali, and S. W. Lee, "Determinants Of Consumers' Intentions To Use Smartphones Apps For Flight Ticket Bookings," *Serv. Ind. J.*, vol. 39, no. 5–6, pp. 385–402, 2018, doi: 10.1080/02642069.2018.1437908.

[36] T. Zhou, "Examining The Critical Success Factors Of Mobile Website Adoption," *Online Inf. Rev.*, vol. 35, no. 4, pp. 636–652, 2011, doi: 10.1108/14684521111161972.

[37] M. Yamin and Y. Lee, "Level of acceptance and factors influencing students' intention to use UCSI University's e-mail system," in *International Conference on User Science Engineering*, 2010, no. May 2009, pp. 26–31, doi: 10.1109/IUSER.2010.5716717.

[38] C. C. Chang and P. Y. Chen, "Analysis Of Critical Factors For Social Games Based On Extended Technology Acceptance Model: aA DEMATEL Approach," *Behav. Inf. Technol.*, vol. 37, no. 8, pp. 774–785, 2018, doi: 10.1080/0144929X.2018.1480654.

[39] H. Si, J. gang Shi, D. Tang, G. Wu, and J. Lan, "Understanding Intention And Behavior Toward Sustainable Usage Of Bike Sharing By Extending The Theory

Of Planned Behavior," *Resour. Conserv. Recycl.*, vol. 152, no. March 2019, p. 104513, 2020, doi: 10.1016/j.resconrec.2019.104513.

[40] H. Wang, D. Tao, N. Yu, and X. Qu, "Understanding Consumer Acceptance Of Healthcare Wearable Devices: An Integrated Model of UTAUT and TTF," *Int. J. Med. Inform.*, vol. 139, no. October 2019, 2020, doi: 10.1016/j.ijmedinf.2020.104156.

[41] C. Lancelot Miltgen, A. Popovič, and T. Oliveira, "Determinants of end-user acceptance of biometrics: Integrating the 'big 3' of technology acceptance with privacy context," *Decis. Support Syst.*, vol. 56, no. 1, pp. 103–114, 2013, doi: 10.1016/j.dss.2013.05.010.

[42] E. Purwanto and J. Loisa, "The Intention And Use Behaviour Of The Mobile Banking System In Indonesia: UTAUT Model," *Technol. Reports Kansai Univ.*, vol. 62, no. 6, pp. 2757–2767, 2020.

[43] C. Buabeng-Andoh, "Exploring University Students' Intention To Use Mobile Learning: A Research Model Approach," *Educ. Inf. Technol.*, vol. 26, no. 1, pp. 241–256, 2021, doi: 10.1007/s10639-020-10267-4.

[44] J. C. Gu, S. C. Lee, and Y. H. Suh, "Determinants of behavioral intention to mobile banking," *Expert Syst. Appl.*, vol. 36, no. 9, pp. 11605–11616, 2009, doi: 10.1016/j.eswa.2009.03.024.

[45] V. Venkatesh, Y. L. Thong, James, and X. Xu, "Consumer Acceptance and Use of Information Technology: Extending the Unified Theory of Acceptance and Use of Technology," *MIS Q.*, vol. 36, no. 1, pp. 157–178, 2012, doi: 10.1109/MWSYM.2015.7167037.

[46] I. Ghozali, *Structural Equation Modeling, Metode Alternatif dengan Partial Least Square (PLS)*. Semarang: Badan Penerbit Universitas Diponegoro, 2014.