Digital Authentication Usage Behavior of Indonesian Civil Servant Pensioners

Zul Akbar Yulianto¹, Linda Asriani², Ardian Syaputra³, Julbintor Kembaren⁴

^{1,2,3}Magister Management Blended Learning, University of Bina Nusantara, Jakarta, Indonesia ⁴University of Bina Nusantara, Jakarta, Indonesia

Zul.yulianto@binus.ac.id, linda.asriani@binus.ac.id, ardian.syaputra@binus.ac.id, julbintor.kembaren001@binus.ac.id

Abstract

In improving service and payment accuracy for Civil Servant pensioners in Indonesia, pensioners can already use a validation tool in digital authentication through facial biometric data using smartphone applications in 2019. This authentication activity is something that pensioners must do before getting their monthly pension to ensure they are still alive and entitled to retirement. With the development of this digital service, pensioners can conveniently fulfil their obligations. However, to ensure pensioners can adapt to technological changes, these services are essential in ensuring the success of the service digitization program. It is because, demographically, there are still many pensioners belonging to the Baby Boomer and X generation categories. This study was conducted to determine the factors that influence the Behavior Intention and Digital Authentication Usage Behavior in pensioners, using TAM 3 theories moderated by technology experience factors from pensioners. Meanwhile, few studies discuss technology experience as a moderator in knowing these two variables. As a result, there was a positive and significant effect of Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Perceived Enjoyment (PE) on Behavioral Intention (BI) using Digital Authentication Applications. Furthermore. Behavioral Intention (BI) positively significantly influenced the Usage Behavior (UB) of this Digital Authentication. Meanwhile, Experience did not moderate the positive effect of perceived enjoyment on behavior intention of the TASPEN Otentikasi Application.

Keywords

biometric; authentication; pensioner; TAM; behavior



I. Introduction

As the Manager of Civil Servant Pensioners Payment in Indonesia appointed by the Indonesian Ministry of Finance, PT TASPEN (PERSERO) has been serving its participants since 1986. At the end of 2018, along with the development of information technology and digitalization, PT TASPEN transformed digitally by launching the application TASPEN Otentikasi for participants to facilitate authentication activities by pensioners.

As defined in the Regulation of the Indonesian Minister of Finance No.82 of 2015, pensions are income received by pension recipients every month based on statutory regulations. According to the Regulation of the Indonesian Minister of Finance No.82 of 2015, the recipients of pensions are former Civil Servants, former soldiers of the Indonesian

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National Armed Forces, former members of the Indonesian National Police, former state officials, and their widows/widowers who are entitled to receive pensions based on the laws and regulations.

According to the Regulation of the Directorate General of Treasury of the Ministry of Finance of the Republic of Indonesia No.44 of 2018, authentication is a process, method, or activity to ensure that pension recipients are still alive and entitled to pension payments. The TASPEN Otentikasi application can be used to authenticate through a smartphone with a validation procedure for the pensioner's TASPEN number and their biometric data in the form of the face, voice, or fingerprint.

The digital transformation uses technology to build new action plans, procedures, programming, and frameworks that result in increasingly profitable revenues, more competitive advantages, and higher efficiency. Digitalization has a substantial impact on people's behavior and culture, the business processes of service industry companies and financial structures, as well as on the growth of the nation (Niraula & Kautish, 2019). The TASPEN Otentikasi application aims to improve service and efficiency from the pensioner's perspective. For companies, this application can improve the accuracy of the authentication data compared to manual authentication on payment partners. This change in digital authentication procedures impacts changes in the company's business processes and the behavior of pensioners in seeking the ease of processing pension payments. Pensioners must carry out authentication as proof or validation that they are still alive or have the right to take the pension every month. Before 2019, pensioners must authenticate by contacting a payment partner (a bank or PT.POS). Through the TASPEN Otentikasi, pensioners can authenticate anywhere and anytime via a smartphone using facial, voice, or fingerprint biometric technology.

The COVID-19 pandemic that has emerged since the beginning of 2020 has created a shift in people's behavior or culture in daily life, especially related to the use of information technology. This condition affects the TASPEN Otentikasi application. Digitalization has helped pensioners who previously had to come to payment partners and make direct contact to authenticate, replaced with authentication that can be done at home via smartphones. In this paradigm, researchers use the concept of a "new normal," which reflects new habits developed during and under a pandemic, emphasizing the need to shop with mobile devices from home instead of going outside (Akram et al., 2021).

1.1 Problem Statement

Organizations planning to implement digital technology must ensure that users also accept it, as an investment in technology implementation can be expensive (Mlekus et al., 2020). The digital transformation carried out by PT TASPEN also considers the demographics of pensioners who are generally more than 58 years old so that this change can optimally positively impact pensioners.

Before pensioners can use the TASPEN Otentikasi, they are required to record their biometric data (enrollment) so that it can be entered into the database. The 2021 data (three years since the launch of TASPEN Otentikasi) showed that as many as 2,893,551 pensioners had enrolled, but only 2,341,217 or 80.91% of them, had used TASPEN Otentikasi; the remaining 19.09% of pensioners still chose manual authentication by coming directly to payment partners. It shows that not all retirees are enthusiastic and consider it essential to change this authentication procedure so that the existing benefits and conveniences have not been fully felt. Meanwhile, according to Morales & Trinidad (2019), today's world recognizes the importance of technology as an essential factor for operational efficiency in responding to the hustle and bustle of people seeking convenience. Everything seems to be

going digital, which means fast, efficient, convenient and accurate operation. However, in implementing biometric technology, there are challenges from the users themselves, because most pensioners still do not understand and are accustomed to using technology. Researchers see that the application still needs to examine pensioners' perspectives regarding the use and change of culture to develop and adjust the TASPEN Otentikasi application in the future.

Based on research related to behavior usage in the financial sector, researchers found that technological change has a relationship with usage behavior, behavior intention, perceived usefulness, perceived ease of use, perceived enjoyment, and experience. Perceived usefulness describes the degree to which new technology will empower clients or users in carrying out tasks (Giatsidis et al., 2019). Perceived ease of use is a significant factor affecting behavioral intention (Akram et al., 2021). Perceived intention to use positively and significantly affects usage behavior (Kitsios, 2021). According to Hakim Suhaimi & Bin Abu Hassan (2019), there is no significant effect between perceived usefulness and acceptance of digital banking.

On the other hand, Davis (1993) shows that perceived usefulness is 50% more important than perceived ease of use. Cheema et al. (2013) stated that perceived enjoyment also significantly influences intention. Song, Singleton, Hill, and Koh (2004) highlight that students' technology experience can influence online course performance expectations. The experience variable is added as a moderating variable which aims to determine whether the moderating variable moderates the independent variable's perceived enjoyment of behavior intention.

II. Review of Literature

Davis (1989) defines the Technology Acceptance Model (TAM) as a technique used to model user acceptance of information systems. TAM assumes two beliefs in assessing an individual's behavioral goals to utilize a system. One of them is perceived usefulness, which is characterized by the extent to which a person believes using this system will improve their work performance. Second, perceived ease of use is characterized by the extent to which a person believes using this system will be free from exertion.

It is assumed that the effects of external factors (e.g., training, system characteristics, and development procedures) on expectations for use are intended by perceived usefulness and perceived ease of utilization. TAM 3 was developed by Venkatesh and Bala (2008) to complement the integration of the model with TAM antecedents. TAM 2 adds the antecedent of perceived usefulness, while TAM 3 is expanded by factors that ignore perceived ease of use presented in Davis (1996) and Venkatesh (2000).

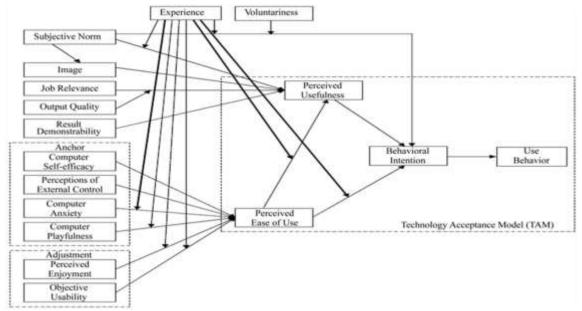


Figure 1. TAM 3 by Venkatesh and Bala (2008)

According to Giatsidis (2019), perceived usefulness describes the degree to which new technology will empower clients/users in carrying out tasks. Perceived usefulness is crucial in seeing behavior intention towards new technology (Puriwat et al., 2019). Furthermore, several references prove the importance of perceived usefulness on adaptation intention (Chen & Barnes., 2007; Guriting & Ndubisi., 2006; Jaruwachirathanakul & Fink, 2005; Eriksson et al., 2005; Hu et al., 1999; Venkatesh., 2000; Venkatesh & Davis., 1996; Venkatesh & Morris., 1996). Tan & Teo (2000) suggested that perceived usefulness is vital in determining behavior intention. As a result, the greater the perceived usefulness of electronic banking services, the more likely it is that electronic banking will be adopted (Polatoglu & Ekin., 2001; Jaruwachirathanakul & Fink., 2005). Meanwhile, according to Hakim & Hassan (2019), there is no significant effect between perceived usefulness and acceptance of digital banking. As explained above and the existing problems regarding the use of the TASPEN Authentication application by pensioners, this study needs to test the following hypotheses:

H1: Perceived usefulness has a positive effect on the behavior intention of the TASPEN Otentikasi application

Based on Akram (2021), perceived ease of use is a significant factor directly influencing behavior. Perceived ease of use is believed to directly or indirectly affect the acceptance of technology (Yan et al., 2022). Researchers argue that perceived ease of use describes the extent to which a person accepts the truth that using the proper method will not harm the individual (Davis et al., 1989; Mathieson., 1991; Gefen & Straub., 2000; Gahtani., 2001). Similarly, Zeithaml et al. (2002) stated that the extent to which an innovation is easy to understand or use can be perceived as ease of use. Then, Chen and Barnes (2007) empirically found that interface technology's two aspects, namely perceived ease of use and perceived usefulness, significantly influence behavior intention. Thus, the second hypothesis in this study is:

H2: Perceived ease of use has a positive effect on the behavior intention of the TASPEN Otentikasi application

Of the several variables in the TAM 3 model, the researcher took one variable in the study, namely perceived enjoyment, to determine the participants' comfort in changing the authentication method from manual to digital through the Taspen Authentication application. Another external variable in the TAM 3 model is not used because the researcher sees that the TASPEN Otentikasi application does not have high complexity relative to the framework and usage process, and is a mobile application that can be completed in one step. With contradictions in previous studies, it is necessary to test the perceived enjoyment of pensioners for authentication applications. Thus, the third hypothesis in this study is:

H3: Perceived enjoyment has a positive effect on the behavior intention of the TASPEN Otentikasi application

User experience is all aspects required to operate and interact with technology effectively. The experience variable is added as a moderating variable, which aims to assess (to determine) whether the moderating variable provides moderating of the independent variable perceived enjoyment on behavior intention.

It is known that the user's technology experience for an application/supporting digital product also influences the use of other digital products. As in the TAM 3 theory above, researchers use this experience variable as a moderator of other variables. Thus, in studies related to the TASPEN Otentikasi application, testing will be carried out with the 4th hypothesis as follows:

H4: Experience moderates the positive influence of perceived enjoyment on behavior intention in the Taspen Otentikasi application

The difference between human tacit/implicit knowledge and effective practical solutions should be reduced as much as possible. As technology and usage behavior continue to change from time to time, there is a need to conduct empirical investigations to identify the current factors influencing the acceptance of new technologies (Sepasgozar, 2020). Thus, the fifth hypothesis is:

H5: Behavior intention has a positive effect on the usage behavior of the TASPEN Otentikasi application

From the literature and studies from previous research, the following research framework is obtained:

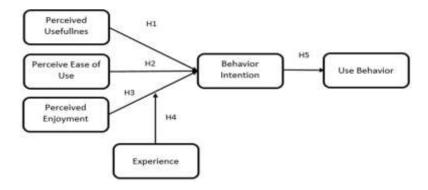


Figure 2. Framework Usage Behavior of Digital Authentication in Indonesian Retired State Civil Servants

III. Research Method

3.1 Research Design

This study used two model concepts to test the previously mentioned hypotheses in explaining the relationship between perceived usefulness (PU), perceived ease of use (PEOU), perceived enjoyment (PE), technology experience (TE) on Behavioral Intention (BI), and the influence of behavioral intention to usage behavior (UB). The model adopted was the TAM model with a quantitative research design approach because the research would involve some samples from the retired population whose information would be taken through a survey/questionnaire strategy. The questionnaire survey is a method of collecting quantitative data to obtain the data samples needed for empirical research (Wang J. et al., 2019). To maximize the hypothesis testing process and capture the optimal picture of pensioners using the TASPEN Otentikasi application, this research would also minimize the level of interference and promote a natural or normal research environment without adjustments or non-contrived. The unit of analysis used was the individual type, where each pensioner taken as a sample represents the distribution of pensioners at a certain age level and region. The research was carried out based on the updated pensioner data, namely pensioner data as of December 2021 or the month before the survey was distributed, to get accurate results so that the time horizon used was Cross-Sectional Studies.

3.2 Method & Technique of Data Collection

This study used a survey method to collect the primary data by distributing questionnaires to pensioners included in the previously mentioned sample. Sekaran & Bougie (2016) stated that the questionnaire method is generally designed to collect extensive quantitative data and is usually cheaper, and takes less time than the interview or observation method. The questionnaire data collection technique would be personally administered through the supervision of officers/employees of PT TASPEN at the Branch Office where pensioners were used as samples. The first step was distributing to the pensioners who came to the Branch Office. Still, suppose no pensioners with the appropriate characteristics were found. In that case, the officer would look for or visit the pensioner so that the number of samples could be collected according to the previously determined sampling method. Concerning respondents who were retirees over 50 years old, the Personally Administered Questionnaire Technique was used to ensure that the prospective respondent could understand the question while minimizing the potential for bias and prioritizing the independence of filling out the questionnaire. This study adopted some questionnaires, such as from the research by Akram, U. et al. (2021) to test the variables of perceived ease of use and perceived usefulness, from the research of Kitsios, F. et al. (2021) to test the variables of behavior intention and usage behavior, and from the research of Morales, D.T., & Trinidad, F.L. (2019) to test the variables of perceived enjoyment and technology experience variables.

3.3 Data Analysis

This study used Multiple Regression Analysis (MRA) through the Partial Least Square (PLS) application as a hypothesis testing technique for Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Perceived Enjoyment (PE) as independent variables on Behavioral Intention (BI) as the dependent variable, Technology Experience (TE) as a variable that moderated Perceived Enjoyment (PE) on Behavioral Intention (BI), and Behavioral Intention

(BI) as an independent variable on Usage Behavior (UB) as the dependent variable. The justification for using the PLS application was to accommodate the testing of the moderating variables in this study. The PLS application was used to investigate research instruments' psychometric properties and assess the hypotheses established in the proposed research model (Hair et al., 2016). The PLS technique was an appropriate approach to investigate technology acceptance when building predictive models (Venkatesh & Bala, 2008). The feel-for data was carried out based on a summary of pensioner questionnaire results.

In contrast, the questionnaire used a 5-level interval scale to determine the pensioner's perception of the variables studied. Validity and reliability tests were carried out that data's goodness of the data. Validity determines how well a technique, instrument, or process measures a particular concept, and reliability indicates how stable and consistently the instrument taps a variable (Sekaran & Bougie 2016).

IV. Discussion

The research sample was taken to pensioners who had authenticated through the TASPEN Otentikasi application and were spread across 32 provinces. Pensioners aged 50 years were given 30 questionnaire items personally administered by officers. The samples obtained were 480 pensioners with a range of 24.79% from West Java Province, 14.38% from Central Java, and 60.83% from other provinces. The study used Moderating Variables in the form of Experience to determine whether this variable could moderate the positive influence of Perceived Enjoyment on Behavior Intention. The data processing used two stages of hypothesis testing where the model would be tested before using moderating variables, and the second stage would use Moderating Variables.

4.1 Validity and Reliability

Ghozali and Latan (2015) state that the validity test is used to measure the validity of a questionnaire. This validity test was carried out through two criteria: convergent validity and discriminant validity. The convergent validity test was conducted to prove that the respondents could understand the questionnaire items on each independent variable by what was perceived by the researchers. The results of processing using the SmartPLS application show the following results:

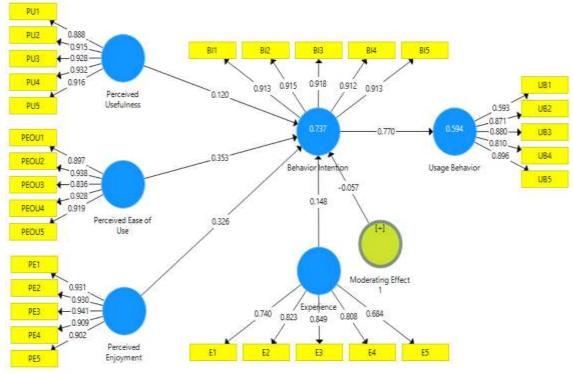


Figure 3. Results of Processing – First Process

The questionnaire item will be considered fit if it has a loading factor of > 0.7. The results above show that there are still two questionnaire items with a loading factor below 0.7: the E5 and UB1; these were deleted, and therefore obtained the following results:

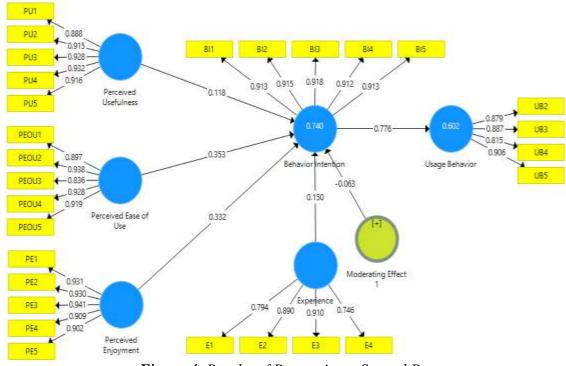


Figure 4. Results of Processing – Second Process

The results of the second processing show that the loading factor has met the convergent validity test, as seen from the loading factor, with a value of > 0.7.

The next validity test was a discriminant validity test to prove that the questionnaire on each latent or independent variable was not confused by respondents who answered based on the questionnaire on other independent variables. Kock and Lynn (2012) state that discriminant validity is met if the Average Variance Extracted (AVE) of the extracted average variance must be higher than the correlation involving the latent variable.

The results of the discriminant validity test are shown in the table below:

Cross Loadings Heterotrait-Monotrait Ratio (HTMT) Fornell-Larcker Criterion ## Heterotrait-Monotrait Ratio (HTMT) Behavior Inten... Experience Moderating Eff... Perceived Ease... Perceived Enjo... Perceived Usef... Behavior Intent... 0.914 Experience 0.483 0.838 Moderating Eff... -0.398-0.1701.000 Perceived Ease ... 0.813 0.461 -0.3880.904 Perceived Enjo ... 0.794 0.368 -0.3570.805 0.923 0.916 Perceived Usef... 0.764 0.310 -0.4470.827 0.837 Usage Behavior 0.776 0.392 -0.318 0.731 0.666 0.673 0.872

Table 1. Discriminant Validity

The results above show that each variable's AVE has a higher value than the correlation of the latent variables involved. Therefore, the data have met the discriminant validity test.

Furthermore, a reliability test was carried out, which needed to be done to determine the level of consistency of answers from time to time. Ghozali and Latan (2015) stated that a reliability test is carried out to prove the instrument's accuracy, consistency, and accuracy in measuring constructs. Measurement of the reliability of a construct with reflexive indicators can be done in two ways: Cronbach Alpha and Composite Reliability. The construct is reliable if the Cronbach Alpha and Composite Reliability values are more than 0.7 for confirmatory research, and values 0.6 - 0.7 are still acceptable for exploratory research. The reliability test obtained the following results:

Matrix Cronbach's Alpha rho_A Composite Reliability Average Variance Extracted (AVE) Cronbach's Alpha rho_A Composite Reliability Average Variance Extracted (AVE) Behavior Intention 0.951 0.952 0.861 0.882 0.903 0.702 Experience 1.000 Moderating Effect 1 1.000 1.000 1.000 Perceived Ease of Use 0.944 0.946 0.957 0.818 Perceived Enjoyment 0.956 0.966 0.851 0.963 Perceived Usefulness 0.952 0.953 0.839 0.895 0.896 0.927 Usage Behavior 0.761

Table 2. Construct Reliability and Validity

It can be seen that all variables have Cronbach Alpha and Composite Reliability values of more than 0.7. Therefore, the reliability test has been fulfilled.

Furthermore, a multicollinearity test was carried out. Ghozali and Latan (2015) explain that the multicollinearity test aims to determine whether the regression model finds a

correlation between independent and independent variables. The cutoff value was for a tolerance value of 0.10 or a VIF value above 10. The results of the test are as follows:

Table 3. Collinearity Statistics (VIF)

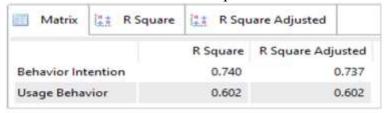


It can be seen that the test results show the VIF value is smaller than 10, even smaller than 5 so that there is no multicollinearity between variables.

4.2 The Goodness of the Fit Model

The R-Square value also indicates a good research model. In this study, the model has the R-Square values as follows:

Table 4. R-Square



Based on the above values, it can be explained that the PEOU, PE, PU, and Exp variables simultaneously have an effect of 74% on the BI variable, while other factors outside the study affect 26%. Meanwhile, the BI variable simultaneously has an effect of 60.2% on the UB variable, while other factors outside the study affect 39.8%.

4.3 Hypothesis Testing

This study used the bootstrapping method with 5,000 subsamples and a one-tailed test with a significance level of 0.05. The test was carried out in two stages, without moderating the Experience variable and then being tested using the Experience Variable moderation. The hypothesis was tested based on the significance values between constructs, t-statistics, and p-values. The hypothesis testing of this research was carried out with the help of the SmartPLS (Partial Least Square) 3.0 software. These values can be seen from the bootstrapping results. The rules of thumb used in this study were t-statistic > 1.96, with a significance level of p-value 0.05 (5%), and a positive beta coefficient.

4.4 Hypothesis Test Results with and without Experience Moderation Variable

The test results with the moderating effect, the calculations below show insignificant test results, namely testing the effect of Perceived Usefulness on Behavior Intention, since its P-values are more significant than 0.05, and a statistical T-value is less than 1.96. Furthermore, the hypothesis testing would be carried out using the Experience Moderation

Variable to determine the moderating effect on the effect of Perceived Enjoyment on Behavior Intention.

Table 5. Path Coefficients – Without Moderation

Mean, STDEV, T-Values, P-Values	onfidence Intervals	Confidence Inter	vals Bias Corrected Sam	nples	
	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (JO/STDEVJ)	P Values
Behavior Intention -> Usage Behavior	0.776	0.778	0.035	21.895	0.000
Perceived Ease of Use -> Behavior Intention	0.449	0.449	0.072	6.244	0.000
Perceived Enjoyment -> Behavior Intention	0.347	0.348	0.066	5.289	0.000
Perceived Usefulness -> Behavior Intention	0.102	0.101	0.065	1.571	0.058

4.5 Summary of the Hypothesis Test Results

Table 6. Hypothesis Result Summary – Without Moderation

Hypothesis	Relationship	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistic	P Values	Result
H1	Perceived Usefulness -> Behavior Intention	0.102	0.101	0.065	1.571	0.058	Rejected
H2	Perceived Ease of Use -> Behavior Intention	0.449	0.499	0.072	6,244	0.000	Accepted
H3	Perceived Enjoyment -> Behavior Intention	0.347	0.348	0.066	5.289	0.000	Accepted
H4	Behavior Intention -> Usage Behavior	0.776	0.778	0.035	21.895	0.000	Accepted

The test results with the moderating effect below show that the Experience variable has a negative and insignificant effect as a moderating of perceived enjoyment on Behavior intention, so hypothesis 4 is rejected. Meanwhile, the moderating variable simultaneously affects other variables, so hypotheses 1, 2,3, and 5 are accepted because they have P values below 0.05 and T statistics more than 1.96.

Table 7. Hypothesis Result – With Moderation

Mean, STDEV, T-Values, P-Values	Confidence Intervals	Confidence Inter	vals Bias Corrected	Samples	
	Original Sample (O)	Sample Mean (M)	Standard Devia	T Statistics (JO/STDEVJ)	P Values
Behavior Intention -> Usage Behavior	0.776	0.779	0.036	21.368	0.000
Experience -> Behavior Intention	0.150	0.151	0.032	4.696	0.000
Moderating Effect 1 -> Behavior Intention	-0.063	-0.062	0.041	1.521	0.064
Perceived Ease of Use -> Behavior Intention	0.353	0.352	0.080	4.414	0.000
Perceived Enjoyment -> Behavior Intention	0.332	0.336	0.059	5.650	0.000
Perceived Usefulness -> Behavior Intention	0.118	0.118	0.072	1.651	0.050

Table 8. Hypothesis Result Summary – With Moderation

Hypothesis	Relationship	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistic	P Values	Result
H1	Perceived Usefulness -> Behavior Intention	0.118	0.118	0.072	1.651	0.050	Accepted
H2	Perceived Ease of Use -> Behavior Intention	0.353	0.352	0.080	4.414	0.000	Accepted
Н3	Perceived Enjoyment -> Behavior Intention	0,332	0.336	0.059	5.650	0.000	Accepted
H4	Moderating Effect 1 -> Beahvior Intention	-0.063	-0.062	0.041	1.521	0.064	Rejected
H5:	Behavior Intention -> Usage Behavior	.0.776	0.779	0.036	21.368	0.000	Accepted

V. Conclusion

From the results of the previous hypothesis test, it proves that Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Perceived Enjoyment (PE) have a positive influence on Behavioral Intention (BI), and indirectly also have a positive influence on Usage Behavior (UB). In contrast, the experience variable does not positively and significantly affect the Perceived Enjoyment variable. It shows that pensioners are interested in using the TASPEN Otentikasi even though they do not have much experience with previous technologies. Pensioners feel that using this application is easy, convenient, and valuable for their authentication activities, even though the technology used in the TASPEN Otentikasi application is relatively new, especially regarding biometric data. The significance level of the Perceived Usefulness variable on the threshold indicates that, because of other interests, some pensioners still feel manual authentication is a good choice, compared to digital authentication, by coming to Payment Partners. PT TASPEN should respond to it by returning to perform service optimization and socialization related to the benefits of the TASPEN Otentikasi application to all pensioners. Along with the development of technology, the use of biometric data will be more and more adapted by business people who use smartphones as their business channels. Hopefully, the higher experience of the community, in general, can increase the use of the TASPEN Otentikasi application in the future.

The conclusions are:

- a. There is a positive and significant effect of Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Perceived Enjoyment (PE) on Behavioral Intention (BI) using the TASPEN Otentikasi application.
- b. There is a positive and significant effect of Behavioral Intention (BI) on the Usage Behavior (UB) of the TASPEN Otentikasi application.
- c. Experience does not moderate the positive effect of perceived enjoyment on behavior intention in the TASPEN Otentikasi application.

Based on the results of the questionnaire distribution and the research tests, there are several suggestions for future studies:

- a. The distribution of questionnaires to pensioners should be carried out more proportionally in each cluster, even though it takes quite a long time.
- b. The moderating variable should be expanded to other variables besides perceived enjoyment.
- c. It is advisable to simplify the number and content of the questionnaires given, considering that respondents are pensioners and relatively have physical limitations because they are pretty old.
- d. Age and gender should be included as parts of the moderation or demographics of the research so that it is expected to provide more comprehensive research results.

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