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Acceptance of the Use of KAIPay Digital Wallets Using the UTAUT Model

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Abstract

The rapid development of digital technology has driven the adoption of application-based payment services such as KAIPAY; however, its usage among students remains suboptimal. This study aims to analyze the factors influencing the intention and behavior of students to use the KAIPAY application, referring to the Unified Theory of Acceptance and Use of Technology (UTAUT) model, which is modified by adding the variable of Trust. Using a quantitative approach and survey method, data will be collected through a questionnaire designed to explore users' perspectives and experiences. Data analysis is planned to utilize Structural Equation Modeling (SEM) to examine the influence of the variables Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, and Trust on Behavioral Intention and Use. By understanding these factors, this research is expected to provide deeper insights into how trust and social influence can contribute to the adoption of digital payment applications among students.

Keywords: *User acceptance, KAIPAY, UTAUT model*

1. Introduction

Amidst rapid technological advances, digital transformation has brought significant changes to various aspects of life, including the way individuals conduct financial transactions. One of the rapidly developing innovations is the use of digital wallets (e-wallets), which offer convenience, speed, and efficiency in cashless transactions. By simply having an account on an e-wallet and being connected to the internet network, e-wallets can be used anytime and anywhere as a valid payment [1]. The presence of e-wallets has become a popular alternative in the digital era, especially among the younger generation who tend to be adaptive to new technologies [2]. One form of digital wallet that is starting to attract attention is KAIPAY, which is integrated into the Access by KAI application. KAIPAY has various superior features such as train ticket payments, transactions with QRIS, practical balance top-ups, and transaction history tracking. However, the success of adopting technology such as KAIPAY is not only determined by the existence of advanced features but also by the extent to which users accept and are willing to use it consistently.

To understand user behavior toward new technologies such as KAIPAY, the Unified Theory of Acceptance and Use of Technology (UTAUT) model is widely used to identify factors that influence technology use intentions and behaviors. This model includes variables such as Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions [3]. Previous research has shown that the factors in the UTAUT model have a significant influence on the intention to use e-wallets among students and young workers [4]. In the context of KAIPAY, it is important to know whether users perceive the performance benefits of using digital wallets, find it easy to operate, and whether social influences and infrastructure support play a role in their decision to use the service.

In addition to the four main variables in UTAUT, one additional factor that is no less important is trust. In the digital environment, especially those involving financial transactions, trust is the main basis that influences user decisions. Trust includes aspects of system security, the credibility of the service provider, and the consistency of the digital wallet's performance [5]. Without trust, users tend to be hesitant and reluctant to use digital wallet services even though the technology offers attractive features and convenience. Therefore, analysis of user trust is important in the study of KAIPAY adoption.

On the other hand, the adoption of digital wallets in Indonesia has increased rapidly, especially after the COVID-19 pandemic which encouraged the use of cashless transactions. Based on data from the Financial Services Authority [6], people's digital financial literacy and inclusion continue to increase, but challenges remain, such as low understanding of digital security and dependence on the quality of technological infrastructure. Thus, through this study, we aim to analyze the factors that affect the intention and behavior of using KAIPAY, especially among students. The focus of the research will refer to variables such as Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Trust, Behavioral Intention, and Use Behavior. The results of this study are expected to provide useful insights into the development of strategies to increase user adoption and satisfaction for KAIPAY digital wallet services in the future.

2. Literature Review

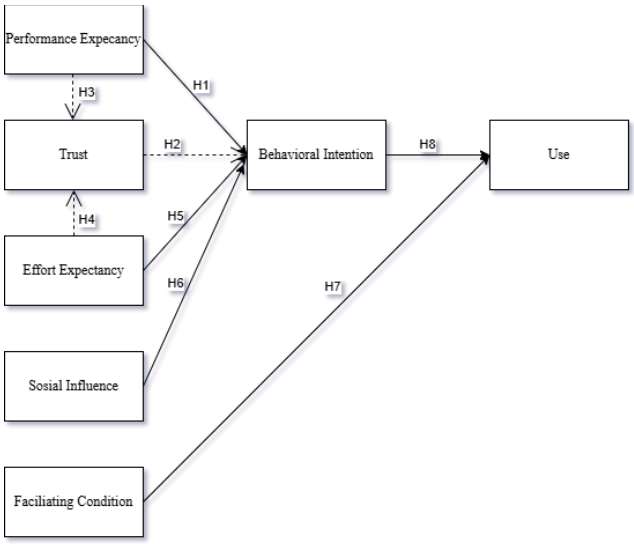
2.1. Unified Theory of Acceptance and Use of Technology (UTAUT)

The Unified Theory of Acceptance and Use of Technology (UTAUT) model was developed by Venkatesh, et al. in 2003 to explain the user's intentions and behaviors in adopting a technology. This model is the result of a synthesis of eight previous theories, such as the Theory of Reasoned Action (TRA), the Technology Acceptance Model (TAM), and the Innovation Diffusion Theory (IDT). UTAUT is considered the most comprehensive model of technology acceptance because it is able to explain most of the variances in user behavior intentions towards technology. UTAUT consists of four main factors, namely:

1. Performance Expectancy, measures the extent to which individuals believe that the use of technology will improve their performance. Performance expectations are known to have a significant influence on mobile banking usage interest and behavior, as well as being the strongest factor in predicting usage intent [7].
2. Effort Expectancy, measures the level of ease felt when using technology. Ease of use has been proven to have a positive effect on the intention to use digital services, especially for users who are not used to using technology [8].
3. Social Influence, measures the extent to which individuals feel encouraged to use technology due to the influence of the social environment, such as family, friends, or other important figures. This social influence has been shown to be significant in shaping behavioral intentions towards technology, especially in the younger generation [9].
4. Facilitating Conditions, measures the level of availability of organizational support and infrastructure that allows a person to use technology easily. The availability of support such as adequate training, networking, and software is one of the main drivers in the adoption of technology [7].

In addition to these four main factors, UTAUT also introduces moderation variables such as age, gender, experience, and voluntariness of use that can strengthen or weaken the relationship between the main components and the intention or behavior of using technology. There will be additional indicators that will be used, namely indicators that come from several previous writings and modifications by the author to match the object of this writing. As a form of model modification, this study also adds several important variables, namely:

1. Trust, which reflects the extent to which users feel confident in the security, reliability, and credibility of the system. Trust is an important aspect of digital services, especially those involving financial transactions. Users tend to be reluctant to us ethe service if they are not confident that the system can keep their data and transactions safe [5].
2. Behavioral Intention, which is the user's intention to use technology in the near future. This intention is influenced by various factors such as perception of benefits, convenience, social influence, and trust levels The stronger the user's intention, the more likely it is that the technology will actually be used
3. Use Behavior, is the actual behavior in using technology, which arises as a result of intentions and other supporting factors. In the context of digital wallets, usage behavior reflects the extent to which users routinely utilize apps like KAIPay in their daily activities.



Source: Author's Processed Results (adopted from Venkatesh, 2003), 2018

Fig. 1: Research Framework

3. Research Methods

3.1. Research Methods

In this study, we chose a quantitative approach with a survey method using a closed questionnaire to delve deeper into the factors that influence the use of KAIPAY digital wallets. We used purposive sampling techniques to select respondents. The selection of students as respondents is based on the consideration that a group is very relevant to be used as a respondent. They are active users of digital technology and are often pioneers in adopting new services, including digital wallets. With their openness to innovation and the ability to quickly adapt to new technologies, we are confident that they can provide valuable insights into the acceptance of KAIPAY digital wallets. To analyze the collected data, we used the Structural Equation Modeling (SEM) method. This method allows us to test the relationship between

variables, such as Performance Expectancy, Effort Expectancy Social Influence, Facilitating Conditions, Trust, Behavioral Intention, and Actual Use.

3.2. Research Hypothesis

Based on the research framework in figure 1, this study has 8 hypotheses listed in table 1.

Table 1: Research Hypothesis

Code	Hypothesis
H1	Performance Expectancy affects Behavioral Intention
H2	Trust affects Behavioral Intention
H3	Performance Expectancy affects Trust
H4	Effort Expectancy affects Trust
H5	Effort Expectancy affects Behavioral Intention
H6	Social Influence affects Behavioral Intention
H7	Facilitating Condition affects Use
H8	Behavioral Intention affects Use

3.3. Data Collection Techniques

In the process of collecting data, this research was carried out through the distribution of online questionnaires to students and students in various educational institutions in Indonesia who have used the KAIPAY digital wallet. The spread is carried out through social media and communication platforms such as WhatsApp and Instagram groups. The questionnaire consists of two main parts:

1. The first part contains questions regarding respondents' demographic data, such as Name, Gender, Education Level focused on students, and Experience of using KAIPAY (length of use and frequency).
2. The second part contains 28 statement items compiled based on seven research variables, namely Performance Expectancy, Effort Expectancy, Social Influence, Facilitating Conditions, Trust, Behavioral Intention, and Use. Each statement is measured using a Likert scale of 1 to 5.

In this study, the Cochran formula was used to determine the number of samples According to Cochran (1977), if the population size is unknown and information about population variation is not available, then the sample size can be taken using a simple probabilistic approach and still produce a representative estimate. The Cochran formula used is as follows:

$$n_0 = \frac{Z^2.p.q}{e^2}$$

With the following information:

- n0 : Initial sample size
- Z : Z-score based on confidence level (used 1.96 for 95% confidence)
- p : Proportion of population, assumed to be 0.5 to maximize variation
- q : 1 – p
- e : Margin of error (0,05 or 5%)

Based on the calculation with values Z=1.96, p=0.5, q=0.5, and e=0.05, the sample size of:

$$n_0 = \frac{(1{,}96)^{2.}0{,}5.0{,}5}{(0{,}05)^2} = 384{,}16$$

For the purposes of this study, the number was rounded to 400 respondents, which was considered sufficient to represent the population of potential KAIPAY users among students.

4. Results and Discussion

After the data collection process through an online questionnaire opened for a period of one month, this study managed to obtain as many as 400 respondents with data that was declared valid and could be analyzed further. This study uses the PLS-SEM method to analyze data with the help of the SmartPLS 4 application. The analysis process is carried out through three main stages, namely: testing the reliability and validity of the model, measuring the determination coefficient (R^2), and hypothesis testing.

4.1. Validity and Reliability Testing

The first step in measuring the reliability and validity of the model is to evaluate the loading factor value of each indicator. An indicator is declared valid if it has a loading factor ≥ 0.5. Conversely, indicators with a loading factor value below 0.5 are considered not to meet the criteria and need to be removed from the model. The results of testing the loading factor values for each indicator can be seen in Table 2.

Table 2: Value Loading Factor

Indicators	Loading Factor	Information	Indicators	Loading Factor	Information
PE1	0.736	Valid	FC3	0.781	Valid
PE2	0.739	Valid	FC4	0.692	Valid
PE3	0.731	Valid	TR1	0.742	Valid
PE4	0.711	Valid	TR2	0.764	Valid
EE1	0.799	Valid	TR3	0.725	Valid

EE2	0.746	Valid	TR4	0.691	Valid
EE3	0.774	Valid	BI1	0.748	Valid
EE4	0.604	Valid	BI2	0.747	Valid
SI1	0.701	Valid	BI3	0.694	Valid
SI2	0.782	Valid	BI4	0.719	Valid
SI3	0.757	Valid	US1	0.746	Valid
SI4	0.718	Valid	US2	0.709	Valid
FC1	0.702	Valid	US3	0.702	Valid
FC2	0.726	Valid	US4	0.745	Valid
PE1	0.736	Valid	FC3	0.781	Valid
PE2	0.739	Valid	FC4	0.692	Valid
PE3	0.731	Valid	TR1	0.742	Valid
PE4	0.711	Valid	TR2	0.764	Valid
EE1	0.799	Valid	TR3	0.725	Valid
EE2	0.746	Valid	TR4	0.691	Valid
EE3	0.774	Valid	BI1	0.748	Valid
EE4	0.604	Valid	BI2	0.747	Valid
SI1	0.701	Valid	BI3	0.694	Valid
SI2	0.782	Valid	BI4	0.719	Valid
SI3	0.757	Valid	US1	0.746	Valid
SI4	0.718	Valid	US2	0.709	Valid
FC1	0.702	Valid	US3	0.702	Valid

In table 2 above, there are 28 indicators showing valid loading factor values, the next step in testing validity and reliability is to evaluate the construct reliability model. For this test, a composite reliability value matrix was used. The minimum criterion for a composite reliability value is ≥ 0.7, which indicates that the construct has a reliable level of reliability.

The results of the composite reliability model test can be seen in Table 3. These values provide a clear picture of how well the constructed tested is reliable in the context of this study. By ensuring that all constructs meet the reliability criteria, we can continue the analysis and draw conclusions from the obtained data with more confidence. The success in achieving a high composite reliability value also shows that the measurements performed are consistent and stable, which is critical to the overall validity of the study

Table 3: Composite Reliability Value

Construct	Composite Reliability	Information
PE	0.818	Reliable
EE	0.823	Reliable
SI	0.816	Reliable
FC	0.820	Reliable
TR	0.829	Reliable
BI	0.821	Reliable
US	0.816	Reliable

Based on Table 3, which presents the results of the composite reliability test, it can be seen that each construct has a composite reliability value that exceeds 0.7. This suggests that all constructs in this study can be considered reliable and feasible for use in further analysis.

After ascertaining the reliability of the construct, the next step is to perform convergent validity testing. Convergent validity is a measure that shows the extent to which a construct can explain the variance of related items. To measure the validity of the convergence, a metric called extracted average variance (AVE) is used. The AVE value that is considered valid is 0.5 or more. The results of the AVE test obtained in this study can be seen in Table 4, which provides a clearer picture of the validity of the tested construct. Thus, this analysis provides confidence that the constructs used in this study are not only reliable but also valid in explaining the phenomenon being studied.

Table 4: AVE Value

Construct	AVE
PE	0.529
EE	0.540
SI	0.527
FC	0.532
TR	0.548
BI	0.534
US	0.527

After the extracted average variance (AVE) test, the results showed that all constructs had an AVE value of more than 0.5. This signifies good convergent validity. With a high AVE value, it can be concluded that the constructs in this study are not only reliable but also valid in describing the concepts being studied. These results provide a solid basis for further analysis and increase the credibility of the research findings.

4.2. Coefficient of Determination (R^2)

The coefficient of Determination (R2) is the proportion of variance in dependent variables that can be predicted from independent variables. Figure 2 is an inner model produced from the analysis of PLS-SEM (Partial Least Squares Structural Equation Modeling) using the SmartPLS application. This model illustrates the relationship between latent variables and their influence on other variables in the context of student use of KAIPAY digital wallets. In this model, the blue circle represents latent variables (constructs) such as Performance Expectancy (PE), Trust (TR), Effort Expectancy (EE), Social Influence (SI), Facilitating Conditions (FC), Behavioral Intention (BI), and Use Behavior (US). Meanwhile, the yellow box shows the indicators (question items) used to measure each construct, where a loading

factor value of more than 0.7 indicates good indicator reliability. The number above the arrow between constructs shows the value of the path coefficient which reflects the magnitude of the influence of one variable on another. For example, Trust (TR) has a considerable influence on Behavioral Intention (BI) with a value of 0.436, while Behavioral Intention (BI) has a significant effect on Use Behavior (US) with a value of 0.471. Performance Expectancy (PE) also contributed to Trust (TR) with a value of 0.197. In addition, the value in the circle indicates R^2 (coefficient of determination) which indicates how much independent variables can explain the dependent variables. The R^2 for Behavioral Intent (BI) is 0.309, which means that 30.9% of the variation in use intent is explained by PE, TR, EE, and SI, while the R^2 for Use Behavior (US) is 0.297, which indicates that 29.7% of the variation in usage behavior is explained by FC and BI. Overall, this model describes the complex relationship between factors that influence students' intentions and behaviors in using KAIPay, with Trust and Behavioral Intention being the most directly influential variables.

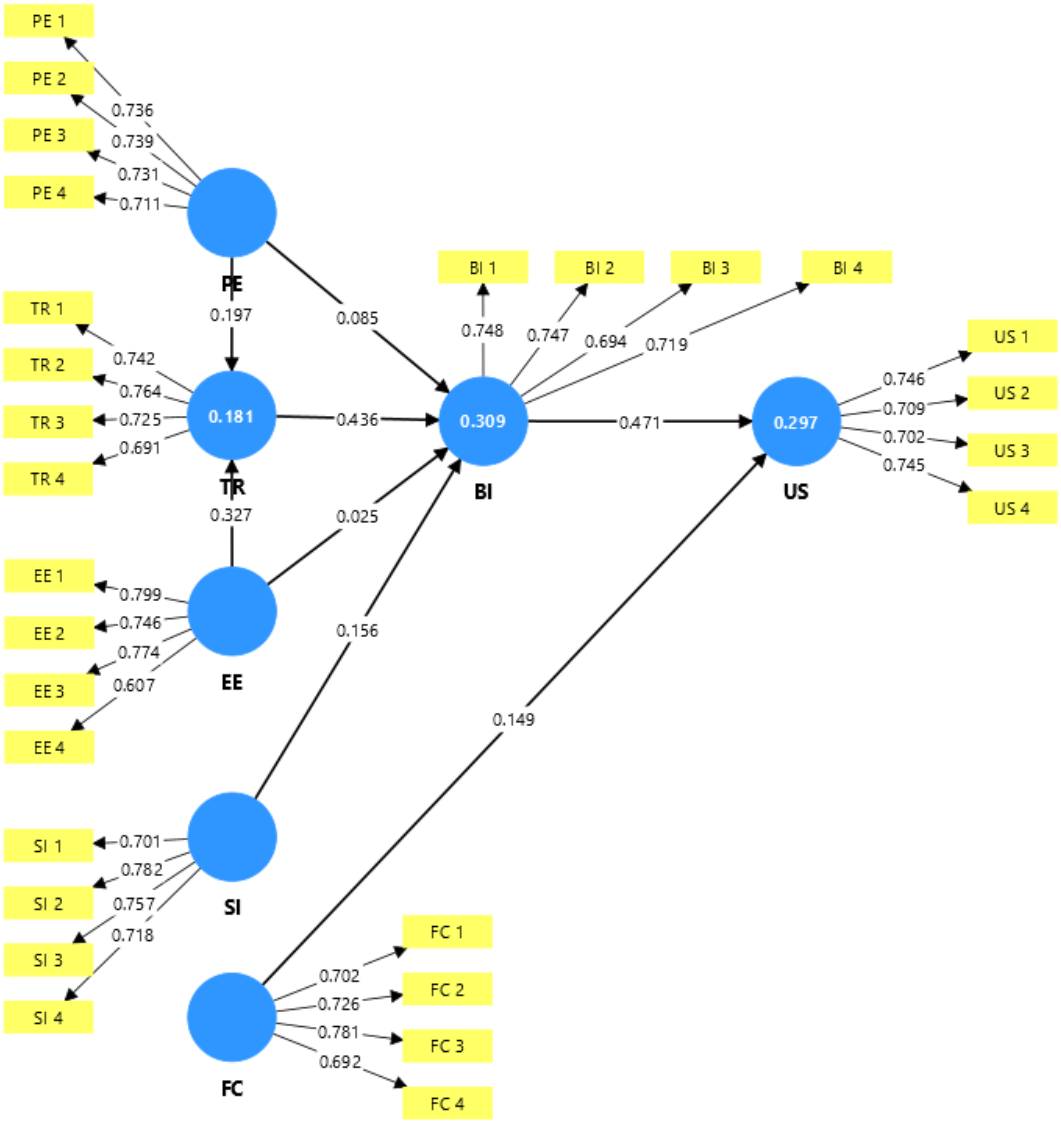


Fig. 2: Model Evaluation Results

After looking at the structural model, the test results showed that all constructs had valid loading factor values and composite reliability that met the criteria. This signifies that the built model is reliable for analyzing the relationships between variables. The path coefficient values obtained showed a significant influence between variables, with Trust and Behavioral Intention as key factors influencing the use of KAIPay.

4.3. Hypothesis Testing

In this study, hypothesis testing was conducted using t-test analysis. The Bootstrap process was conducted with the help of the SmartPLS application, which involved a two-tailed test with a significance level of 5% and 5000 subsamples. A hypothesis will be accepted if the t-value obtained exceeds 1.96 and the p-value is less than 0.05. The results of this hypothesis testing are presented in Table 5.

Table 5: Hypothesis Testing Results

Code	Hypothesis	*t*-value	*p*-value	Result
H1	PE → BI	1.550	0.121	H1 Rejected
H2	TR → BI	7.105	0.000	H2 Accepted
H3	PE → TR	3.162	0.002	H3 Accepted
H4	EE → TR	5.573	0.000	H4 Accepted

H5	EE → BI	0.519	0.604	H5 Rejected
H6	SI → BI	2.550	0.011	H6 Accepted
H7	FC → US	2.606	0.009	H7 Accepted
H8	BI → US	7.929	0.000	H8 Accepted

Based on the results of hypothesis testing using the bootstrapping method with the help of the SmartPLS application, it can be concluded that of the eight hypotheses proposed in this study, six of them are accepted and two are rejected. The test was carried out with a significance level of 5% and a two-sided approach, where a hypothesis is considered significant if the t-value is more than 1.96 and the p- value is less than 0.05.

The first hypothesis (H1) which states that the expectation of system performance (Performance Expectancy) affects the intention to use the system (Behavioral Intention) was rejected, because the t-value was only 1.550 and the p-value was 0.121. This means that users' expectations that the system can help them work better, turn out not to be strong enough to encourage them to intend to use it. Likewise, the fifth hypothesis (H5) which states that ease of use (Effort Expectancy) affects the intention of use This hypothesis is also rejected, with a t-value of 0.519 and a p-value of 0.604. This means that even though the system is considered easy to use, it does not automatically make people want to use it. It could be because users are already used to technology, so convenience is no longer the main factor for them.

On the contrary, the other six hypotheses actually showed positive and significant results. For example, the second hypothesis (H2) proves that users' trust in the system (Trust) has an important role in shaping their intention to use the system. A t-value of 7.105 and a p-value of 0.000 indicates a very strong relationship. This means that when users feel that the system is secure, trustworthy, and working well, they will be more confident and willing to use it. This is also strengthened by the third hypothesis (H3), that expectations for system performance can actually build trust. Users feel that if the system really helps their task, then trust grows naturally.

The fourth hypothesis (H4) suggests that perceptions of the ease of use of the system can also strengthen user trust. This makes sense because a system that is easy to understand and use will give a positive impression and encourage trust. Although it does not immediately make them want to use it, convenience still has a role in forming confidence in the system. The sixth hypothesis (H6) also shows that the influence of other people such as friends, superiors, or the social environment also encourages a person to have the intention of using the system. This shows that social factors are still relevant in the adoption of technology, especially in certain work environments or communities.

The seventh (H7) and eighth (H8) hypotheses also provide convincing results. The availability of facilities and technical support (Facilitating Conditions) has a significant effect on the actual use of the system (Use). This means that users will be more motivated to use the system if they feel supported both in terms of devices, networks, and technical assistance. While the strongest is the relationship between the intention of use (Behavioral Intention) and the actual use of the system (H8). With a t-value of 7.929, it is very clear that when someone already has strong intentions, then they are more likely to actually use the system.

Overall, these results provide an understanding that building user trust is key. Expectations for performance and convenience are important, but the impact will be greater if they are directed to foster trust. In addition, social and technical support also plays an important role. So, if we want to encourage people to use a system or technology, don't just focus on the technical features, but also make sure they feel comfortable, trusted, and supported across the board.

5. Conclusion

This research aims to understand more deeply what motivates students to use KAIPAY digital wallet services in their daily lives. In the midst of dense activities and the need for ease of transactions, KAIPAY is present as a practical digital solution. Therefore, this study focuses on several important factors that are estimated to influence students' decisions to use this service, such as ease of use, expectations for application performance, support from the surrounding environment, trust, and intention to use which lead to real usage behavior.

Of the eight hypotheses put forward, six of them proved significant and accepted, while the remaining two were rejected because they did not meet statistical criteria. These results show that user trust, social influence, availability of adequate support or facilities, and user intent directly contribute to the use of KAIPAY. Meanwhile, expectations of performance and ease of use are not strong enough to encourage students' intentions to use the application, although both still play an important role in building trust in the service.

These findings show how important emotional and social aspects are in digital experiences. It's not just about how advanced or fast an app is, but also how much users feel safe, trusted, and supported in using it. Therefore, the future development of KAIPAY needs to focus not only on technology, but also pay attention to values such as convenience, trust, and support that build a positive relationship between users and services.

Overall, this research provides a more humane picture of how students respond to financial technology like KAIPAY. The results are expected to be a foothold for developers and stakeholders to create strategies that better touch the real needs of users. By prioritizing a friendly, trusted, and accessible approach, KAIPAY has a great opportunity to continue to grow and become an important part of students' digital lives.

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