



Determinants of understanding of old age security claim calculations in the employment social security system

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ABSTRACT

Purpose: to analyze the influence of the quality of the Jamsostek Mobile (JMO) application, socialization, education level, and participant motivation on the level of understanding of old age security (OAS) claim calculations.

Method: this study used a quantitative approach with a survey design, involving 287 OAS participants as respondents. Data were analyzed using multiple regression to test the relationship between independent variables and participant understanding levels.

Findings: the quality of the JMO application, education level, and participant motivation had a positive effect on the level of understanding of OAS claim calculations, whereas socialization did not affect the level of understanding of OAS claim calculations. These findings emphasize the importance of a combination of quality facilities, participant motivation, and individual abilities in improving understanding, while providing information alone is not enough.

Implications: this study strengthens key theoretical frameworks and provides practical guidance for developing effective applications and educational strategies to enhance participants' understanding of OAS claims and independence.

Originality: lies in its multidimensional approach, which combines internal and external factors, utilizes digital applications as an educational tool, and integrates theories to provide a comprehensive understanding of OAS claim participants.



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Introduction

In the era of increasingly rapid digitalization, information technology plays a crucial role in improving the efficiency and quality of public services. One example of this digital transformation is the development of JMO by the Social Security Administering Agency (SSAA) for Employment, including information and the old age security (OAS) claim process. This application is expected to improve transparency,

accuracy, and participant understanding of their rights and obligations as beneficiaries of the employment social security program (Razavi, 2022). SSAA for Employment is a public legal entity responsible for providing social protection to workers in Indonesia, including old age security (OAS) (Utami, 2022). One crucial aspect of implementing this program is participant understanding of the OAS claim calculation mechanism, which plays a role in ensuring their rights are properly fulfilled (Ihwanto et al., 2024). However, in reality, many participants still struggle to understand the OAS claim process and calculation.

This phenomenon suggests that many SSAA for Employment participants still lack a clear understanding of the components that influence their OAS balance, including accumulated contributions, fund development results, and disbursement mechanisms. This is evident in the numerous complaints received, both through social media, SSAA for Employment customer service, and direct complaints at branch offices. Some participants expressed confusion regarding the amount of balance received upon disbursement, while others experienced obstacles due to a lack of understanding of the administrative requirements that must be met. Furthermore, survey results indicate that a gap in financial literacy remains regarding pension funds (OJK, 2025). Many participants only understand OAS claim calculations after experiencing obstacles during the disbursement process, which could have been avoided if they had access to more straightforward and more easily understood information from the start. This can be caused by several factors, including the quality of the application, the intensity of outreach conducted by SSAA for Employment, the participant's education level, and the individual's motivation to seek and understand information related to their social security rights. Suboptimal application quality, uneven socialization, and differences in educational and motivational levels can affect the extent to which participants can accurately understand the OAS claim process and calculations.

Several previous studies have discussed the use of technology in SSAA for Employment services, the effectiveness of employment policy socialization, and the relationship between education level and financial literacy (Akbar et al., 2025; Manalu et al., 2025; Muin et al., 2025). However, there is limited research that comprehensively examines how the quality of the JMO application, socialization, education level, and motivation simultaneously influence participants' understanding of OAS claim calculations. Some studies have focused on only one or two factors without examining the holistic relationship between variables. Furthermore, few studies have quantitatively measured participants' understanding of OAS claim calculations, especially considering the development of digital technology that increasingly influences how participants access information related to their employment rights. Therefore, this study aims to fill this gap by comprehensively analyzing factors that can enhance participants' understanding of OAS claim calculations.

This study does not examine a single aspect, but integrates four main factors: the quality of the JMO application, socialization, education level, and motivation in influencing participants' understanding of OAS claim calculations. With the increasing use of digital services, this study offers a new perspective on the extent to which the JMO application aids participants in understanding their rights when calculating OAS claims. A good understanding of OAS calculations is important because it is directly related to participants' financial rights upon retirement or termination of employment. Misunderstanding provisions or calculations can lead to misunderstandings, dissatisfaction, and even potential disputes between participants and the implementing institution. Therefore, this study aims to analyze the influence of the quality of the JMO

application, socialization, education level, and motivation on participants' level of understanding of OAS claims. This research is expected to serve as a foundation for improving the SSAA for Employment information and socialization system, both by enhancing the quality of the JMO application and by developing more effective educational methods for participants with varying educational levels. This research is also expected to contribute to the development of policies aimed at improving the workforce's financial literacy, particularly in the aspect of understanding OAS calculations. The resulting recommendations can serve as a basis for the government and SSAA for Employment to improve participants' understanding of employment rights and enhance communication strategies, education, and the development of digital services to be more effective and inclusive. By understanding the factors that influence participants' understanding, this research is expected to provide deeper insights and form the basis for more effective policies to enhance Indonesia's employment literacy in the digital era.

Literature review

Technology acceptance model (TAM)

The TAM is a theoretical model used to explain and predict user acceptance of information technology (Davis, 1989). The purpose of TAM is to explain the factors that influence user acceptance of new technological systems. Predicting users' intentions and actual behavior in using technology becomes the basis for system developers to improve technology design and adoption based on user perceptions (FakhrHosseini et al., 2024; Jiao & Cao, 2024). The basic TAM model has five primary constructs: perceived usefulness, perceived ease of use, attitude toward use, behavioral intention to use, and actual use (Mailizar et al., 2021).

Diffusion of innovations theory

Diffusion of innovations theory explains how, why, and at what rate innovations spread among members of a social system (Rogers, 1962). This theory aims to understand how an innovation is introduced into a social system, how individuals or groups decide to adopt or reject it, and what factors influence the speed and extent of its adoption. The diffusion process involves four main components: innovation, communication channels, time, and the social system (Silva et al., 2022).

Theory of human capital

The theory of human capital is an economic and social theory that explains that an individual's knowledge, skills, and abilities are a form of investment that can increase a person's productivity and income, just as physical capital (machines, buildings, or technology) increases a company's productivity (Becker, 1964). This theory is based on the assumption that humans are a form of capital, not just labor. Education, training, health, and work experience are forms of investment in humans (Bazyliuk et al., 2023). These investments increase individual productivity, which in turn leads to increased personal income and national economic growth. Just as physical investments have long-term economic costs and benefits, investments in humans also have long-term economic implications.

Two-factor theory

Two-factor theory, also known as work motivation theory, was developed by Herzberg et al. (1959). This theory focuses on the factors that cause job satisfaction and dissatisfaction, explaining that these two factors do not exist on the same continuum, but instead on two separate dimensions. These factors are intrinsic to the job content, meaning they originate from within the job itself. These factors are extrinsic to the work environment, meaning they originate from outside the job itself.

Understanding

Understanding is a person's ability to comprehend, interpret, and apply the information they receive (Kozanoglu & Abedin, 2021). Understanding is the second level, following knowledge, in the cognitive domain, encompassing the ability to explain, differentiate, and interpret information (Bloom et al., 1956). Understanding is the ability to interpret, explain, and apply information, rather than simply memorizing facts. Understanding emphasizes the importance of experience, prior knowledge, social interactions, and cognitive strategies in constructing meaning. Good understanding enables individuals to apply knowledge in new contexts and solve problems effectively (Helfat et al., 2023).

Application quality

Application quality is a measure of the extent to which a system or application can meet the needs and expectations of its users (Pereira et al., 2022). System quality and information quality are two key dimensions that significantly influence the success of an information system (Delone & McLean, 2003). Applications that meet user expectations and predetermined specifications, including functionality, performance, security, usability, reliability, maintainability, and portability, are considered high-quality software. Quality evaluation requires both objective metrics, such as response time, and subjective metrics, like user satisfaction.

Socialization

Socialization in the context of public institutions is the process of conveying information, understanding, and shaping public attitudes toward a particular program or policy (Liao, 2023). Through socialization, individuals can learn how to interact, adapt, and understand the information conveyed regarding a particular program or policy. Socialization facilitates the dissemination of information and promotes the public adoption of a system (Rogers & Shoemaker, 1971).

Level of education

Education is a form of investment in human capital that will improve a person's cognitive abilities, skills, and productivity (Becker, 1964). Education emphasizes that methods and materials must be adapted to an individual's stage of cognitive, social-emotional, and psychological development. Educational level is a classification or division of educational levels based on an individual's age, ability, or maturity level, which aims to shape abilities, knowledge, skills, and character according to their stage of development (Kapur, 2024). Higher levels of education are generally associated with the ability to think logically, comprehend complex information, and make more informed and rational decisions.

Motivation

Motivation is an internal or external drive that inspires enthusiasm and directs a person's actions toward achieving a specific goal. Motivation arises from both satisfying factors (motivators) and hygiene factors, including achievement, recognition, and responsibility, as well as working conditions and organizational policies (Herzberg et al., 1959). Motivation explains why someone acts, how much effort they expend, and how long they persist in achieving their goals (Heckhausen & Heckhausen, 2025). Motivation helps design effective ways to increase a person's enthusiasm and productivity.

Hypothesis development

The quality of the JMO application plays a crucial role in determining the level of user acceptance of technology, as explained through the TAM framework. Good application quality includes ease of use, speed of access, an attractive interface, and the accuracy and completeness of the information presented to users (Ayada & Hammad, 2023). Applications with high system and information quality will generate positive perceptions of ease of use and usefulness. These two perceptions are key components in TAM, explaining why someone is willing or unwilling to use a technology (Tahar et al., 2020). Therefore, the higher the quality of the JMO application, the more likely participants are to perceive the application as easy to use and providing tangible benefits in managing and calculating OAS. In other words, the higher the quality of the JMO application, the higher the participants' level of understanding of the claims mechanism implemented through the application. Therefore, hypothesis H₁ can be formulated: the quality of the JMO application has a positive effect on participants' level of understanding in calculating OAS claims.

Socialization plays an initial role in introducing the JMO application to participants. Socialization is the process of conveying information, education, and understanding to the public, enabling them to understand the benefits, functions, and how to utilize a system or service (Nasution et al., 2022). Good socialization will foster participants' trust and readiness to try and use the application (Nielsen & Nielsen, 2025). After participants obtain information through socialization, the technology acceptance process is further explained by TAM. In this case, participants who have received adequate socialization tend to have a more positive perception of the JMO application. They will assess the application as easy to use and helpful in helping them calculate and understand their OAS balances and claims. In addition to TAM, the diffusion of innovations theory explains how technological innovations, such as the JMO application, spread and are adopted by the public. Good socialization will help clarify the application's advantages and benefits, reduce perceived complexity, and encourage more participants to try and use the application (Chuang & Liao, 2021). When this innovation is widely accepted and used, participants' understanding of OAS claim procedures and calculations also increases as they gain direct experience through interaction with the system. Thus, better socialization regarding the JMO application will, in turn, increase participants' level of understanding in calculating OAS claims. Therefore, hypothesis H₂ can be formulated: socialization has a positive effect on participants' level of understanding in calculating OAS claims.

Human capital theory posits that education, skills, and knowledge are forms of individual investment that enhance productivity and cognitive ability (Rothomi & Rafid, 2023). The higher a person's education level, the greater their ability to understand, process, and utilize information. In the context of the SSAA for Employment program, particularly in the aspect of calculating OAS claims, education level is a critical factor

influencing the extent to which participants can understand the procedures, requirements, and calculation of the claim value they receive. Individuals with higher levels of education generally possess better literacy, numeracy, and technology skills (Elliott et al., 2021), making it easier for them to access, interpret, and utilize the information provided by SSAA for Employment, both through the website and the JMO application. This aligns with human capital theory, which posits that education enhances an individual's cognitive capacity, thereby influencing the quality of decision-making and the ability to comprehend complex systems (Sadeghi et al., 2019). Thus, a higher level of education will improve participants' ability to understand how the OAS system works. Therefore, the hypothesis H_3 can be formulated: the level of education has a positive effect on the level of understanding of participants in calculating OAS claims.

Motivation is an internal factor that drives a person to act and achieve specific goals (Heckhausen & Heckhausen, 2025). In the context of SSAA for Employment participants, motivation can arise from the need to understand their social security rights, including how to calculate and claim OAS benefits. Human capital theory explains that individuals will invest in themselves through education, training, and experience to improve their skills and knowledge (Deming, 2022). In this case, motivation plays a primary role in driving someone to make this investment in knowledge. Participants with high motivation will be more proactive in seeking information, learning procedures, and understanding how the OAS system works through various sources, including the JMO application. Furthermore, the two-factor theory explains that two groups of factors influence a person's motivation: motivator factors and hygiene factors (Ibrahim et al., 2023). Motivator factors include achievement, recognition, and self-development, while hygiene factors include working conditions, organizational policies, and security. In the context of SSAA for Employment, participants who feel that understanding OAS claim calculations provides personal benefits, such as financial security, clarity of rights, and future certainty, will be more motivated to learn the system. These motivating factors encourage participants to enhance their understanding of the claim mechanism, while hygiene factors, such as easy access to information and clear procedures, support their comfort in the learning process. Therefore, hypothesis H_4 can be formulated: motivation has a positive effect on participants' level of understanding in calculating OAS claims.

Method

This study uses a descriptive quantitative approach. The data used are both primary and secondary, comprising questionnaires and literature studies. The population in this study consisted of all participants at the SSAA for Employment Dumai branch office, totaling 1,005 people. The sampling technique employed was random sampling, utilizing the Yamane (1968) approach, which resulted in a sample size of 287 individuals. The research questionnaire employed a Likert scale with the following categories: strongly agree (5), agree (4), not enough agree (3), disagree (2), and strongly disagree (1). The research variables consisted of application quality (23 statement items), socialization (4 statement items), education level (4 statement items), motivation (6 statement items) as independent variables, and level of understanding (7 statement items) as the dependent variable. The data analysis technique employed multiple linear regressions, with validity and reliability assessed, and classical assumptions and hypothesis testing performed using SPSS software.

Results and discussion

Respondent demographics are part of the research that contains data or information regarding the respondents' basic characteristics. Table 1 presents information on respondent characteristics, including gender, age range, education level, and length of service.

Table 1 respondent demographics

| Characteristics | Description | Amount | Percentage (%) |
|------------------|--------------------|--------|----------------|
| Gender | Male | 141 | 49.1 |
| | Female | 146 | 50.9 |
| Age range | 19-25 years | 21 | 7.3 |
| | 26-30 years | 106 | 36.9 |
| | 31-35 years | 61 | 21.3 |
| | 36-40 years | 71 | 24.7 |
| | 41-45 years | 19 | 6.6 |
| | > 46 years | 9 | 3.1 |
| Education level | Junior high school | 1 | 0.3 |
| | Senior high school | 91 | 31.7 |
| | Diploma 3 | 135 | 47.0 |
| | Bachelor's degree | 60 | 20.9 |
| Years of service | 1-3 years | 47 | 16.4 |
| | 4-6 years | 118 | 41.1 |
| | 7-9 years | 81 | 28.2 |
| | 10-12 years | 34 | 11.8 |
| | > 13 years | 7 | 2.4 |

Source: primary data, processed

Table 1 show that the respondents in this study consisted of 141 people (49.1%) of male gender and 146 people (50.9%) of female gender. This indicates that the composition of respondents between men and women is relatively balanced, so the study's results are expected to represent the views of both gender groups proportionally. Viewed from the age aspect, the majority of respondents were in the 26–30 years age range, namely 106 people (36.9%). Furthermore, respondents aged 36–40 years comprised 71 people (24.7%), and those aged 31–35 years comprised 61 people (21.3%). Meanwhile, respondents aged 19–25 years comprised 21 people (7.3%), respondents aged 41–45 years comprised 19 people (6.6%), and respondents over 46 years comprised 9 people (3.1%). This distribution indicates that the majority of respondents fall within the productive age category, which typically exhibits a high level of activity and involvement in the workforce.

Judging from the last level of education, the majority of respondents were Diploma 3 graduates, with 135 people (47.0%), followed by senior high school graduates, with 91 people (31.7%), and Bachelor's degree holders, with 60 people (20.9%). There was only one respondent (0.3%) who had a junior high school education. This condition suggests that most respondents hold a secondary or higher educational background, indicating a relatively high level of knowledge and skills. Meanwhile, based on work experience, it was found that the majority of respondents had a work experience of 4–6 years as many as 118 people (41.1%), followed by respondents with a work experience of 7–9 years as many as 81 people (28.2%), and 1–3 years as many as 47 people (16.4%). Meanwhile, respondents with 10–12 years of work experience numbered 34 people (11.8%), and those with more than 13 years of work experience included 7 people (2.4%). The data show that most respondents have work experience

at the middle level, which supports the quality of the data in this study. Overall, it can be said that the demographic characteristics of the respondents in this study were dominated by individuals of productive age, with secondary to higher education, and considerable work experience. This situation indicates that the respondents had sufficient capacity to provide relevant and reliable answers to the research instrument used.

Descriptive statistics

Descriptive statistics are used to provide a general overview of research data or variables, allowing for the understanding of patterns, trends, and data distribution, as shown in Table 2.

Table 2 descriptive statistics results

| Variables | N | Mean | Std. deviation |
|------------------|----------|-------------|-----------------------|
| Quality | 287 | 99,21 | 7,611 |
| Socialization | 287 | 17,17 | 1,616 |
| Education | 287 | 17,10 | 1,512 |
| Motivation | 287 | 25,88 | 2,162 |
| Understanding | 287 | 30,14 | 2,695 |

Source: primary data, processed

Table 1 presents the results of descriptive statistical analysis for 287 respondents, providing an overview of the average value and standard deviation for each research variable, including quality, socialization, education, motivation, and understanding. The quality has an average value of 99.21 with a standard deviation of 7.611. This indicates that the level of quality perceived by respondents falls into the high category, although there is a relatively moderate variation in answers among respondents. Socialization has an average of 17.17 and a standard deviation of 1.616. This value indicates that the level of socialization of respondents is classified as good, with a relatively homogeneous or not too varied data distribution. Education obtained an average value of 17.10 with a standard deviation of 1.512. These results indicate that the level of education of the respondents is generally in the good category, with a high level of uniformity in the answers.

Motivation obtained an average value of 25.88 and a standard deviation of 2.162. This value indicates that respondents have a high level of motivation in the context of this study. A moderate standard deviation value indicates slight differences in motivation levels between respondents, but generally shows consistency. Understanding has the highest average value of 30.14 with a standard deviation of 2.695. This indicates that respondents have an excellent level of understanding of the material or context of the research conducted, with a moderate variation in answers. Overall, the results of the descriptive analysis indicate that all variables have relatively high average values, suggesting that respondents provided a positive assessment of the variables studied. In addition, low to moderate standard deviation values indicate that the data obtained is quite consistent and reliable for further analysis.

Validity and reliability

Validity testing is used to determine the extent to which a research instrument accurately measures what it is intended to measure. Reliability testing is used to determine the extent to which a research instrument can produce consistent or stable results when used repeatedly. The test results are presented in Table 3.

Table 3 validity and reliability results

| Variables | Items | Lowest r-stat | Highest r-stat | Cronbach's alpha |
|--------------------|-------|---------------|----------------|------------------|
| Quality | 23 | 0.413 | 0.637 | 0.851 |
| Socialization | 4 | 0.517 | 0.650 | 0.624 |
| Education | 4 | 0.541 | 0.578 | 0.796 |
| Motivation | 6 | 0.420 | 0.623 | 0.719 |
| Understanding | 7 | 0.519 | 0.687 | 0.664 |
| R-Table | | 0.115 | | |
| Reliability | | 0.600 | | |

Source: primary data, processed

Table 3 shows that all research instrument items for the Quality (23 items), Socialization (4 items), Education (4 items), Motivation (6 items), and Understanding (7 items) are declared valid, because the r-statistic value of each item is greater than the r-table of 0.115. The results of the reliability test show that the Cronbach's Alpha value of the Quality is 0.851, which is classified as very reliable; Socialization 0.624 is classified as quite reliable; Education 0.796 is classified as reliable; Motivation 0.719 is classified as reliable; and Understanding 0.664 is classified as quite reliable. Thus, all research instruments meet the criteria of validity and reliability, making them suitable for accurately, consistently, and reliably measuring the variables studied.

Normality

The normality test is used to determine whether the distribution of research variable data follows a normal distribution pattern or not. Based on the results of the normality test using the Kolmogorov-Smirnov test, the Asymp. Sig. (2-tailed) value is 0.200. This value is greater than 0.05, so it can be concluded that the research variable data is normally distributed. Thus, the normality assumption is met, and the data are suitable for further parametric statistical analysis. Based on the results of the normal p-p plot test in Figure 1, it is evident that the points on the plot are clustered very closely to a straight diagonal line extending from the lower left corner to the upper right corner. This result indicates that the residual data from the regression model has a distribution close to normal, so the normality assumption is met.

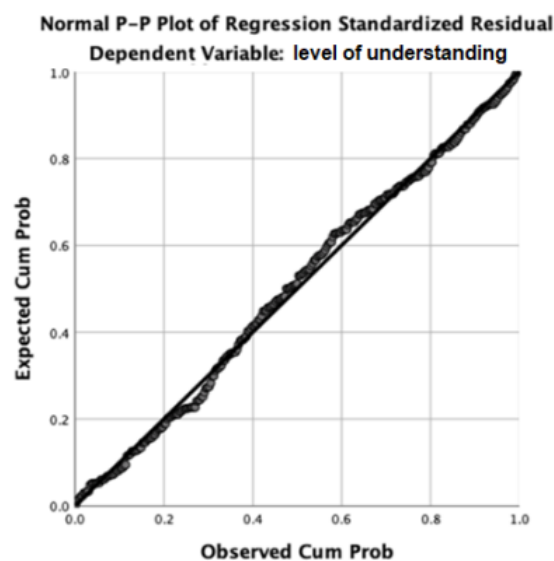


Figure 1 normal p-p plot
Source: primary data, processed

Multicollinearity

The multicollinearity test is a procedure used to detect whether there is a very high correlation between independent variables in a regression model. The test results are presented in Table 4.

Table 4 multicollinearity results

| Variables | Tolerance | VIF |
|---------------|-----------|-------|
| Quality | 0.374 | 2.672 |
| Socialization | 0.536 | 1.865 |
| Education | 0.547 | 1.828 |
| Motivation | 0.445 | 2.246 |

Source: primary data, processed

The results of the multicollinearity test were conducted by examining the tolerance and variance inflation factor (VIF) values. Table 4 presents the tolerance values for quality, socialization, education, and motivation, which are 0.374, 0.536, 0.547, and 0.445, respectively. These tolerance values are all greater than the critical limit of 0.1, indicating no indication of significant multicollinearity among the independent variables. In addition, the VIF values for quality, socialization, education, and motivation are 2.672, 1.865, 1.828, and 2.246, respectively, all of which are below the threshold of 10. This indicates that there is no problematic multicollinearity in this regression model. Thus, these independent variables can be used simultaneously in the regression analysis because there is no significant redundancy in the information. Therefore, the regression model used is valid, and the interpretation of the regression coefficient results is reliable.

Heteroscedasticity

The heteroscedasticity test is a procedure used to detect inconsistencies in the residual variance (error) in a regression model. The goal is to ensure that the residual variance is constant (homoscedasticity), which is one of the classic assumptions of linear regression. The test results are presented in Table 5 and Figure 2.

Table 5 heteroscedasticity results

| Variables | Sig. |
|---------------|-------|
| Quality | 0.545 |
| Socialization | 0.533 |
| Education | 0.662 |
| Motivation | 0.490 |

Source: primary data, processed

Table 5 shows that the Sig. value for all variables is greater than 0.05. This indicates that there is no heteroscedasticity in any of the independent variables. In other words, the residual variance of the regression model is constant across all observations, thus meeting the homoscedasticity assumption. Figure 2 shows that the points on the scatterplot are distributed relatively evenly and randomly around the zero horizontal line (they do not form a specific pattern such as a widening or narrowing cone). No systematic pattern is observed, such as a widening of the residuals (heteroscedasticity) that increases or decreases following the predicted value. Some points are spread somewhat apart, but overall, the residual pattern is evenly distributed. These results indicate no significant indication of heteroscedasticity, as the residuals are relatively

randomly and evenly distributed without any discernible pattern. Thus, the assumption of homoscedasticity is met in this regression model.

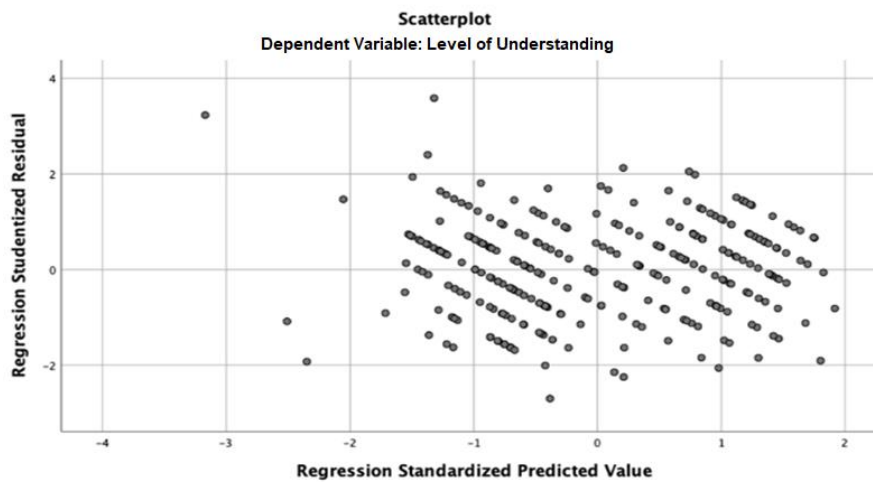


Figure 2 scatterplot
Source: primary data, processed

Hypothesis

Hypothesis testing is a statistical procedure used to make a decision whether a hypothesis about a population is accepted or rejected based on sample data. The test results can be seen in Table 6.

Table 6 hypothesis results

| Hypothesis | Coefficient | T-stat | Sig. | R-square |
|------------------------------------------------|-------------|---------|-------|----------|
| H ₁ : Quality → Understanding | 0.128 | 6.275 | 0.000 | 0.554 |
| H ₂ : Socialization → Understanding | 0.114 | 1.410 | 0.160 | - |
| H ₃ : Education → Understanding | 0.377 | 4.427 | 0.000 | 0.416 |
| H ₄ : Motivation → Understanding | 0.356 | 5.388 | 0.000 | 0.495 |
| F-stat | | 129.250 | 0.000 | 0.642 |
| T-table | | 1.968 | | |
| F-table | | 2,400 | | |

Source: primary data, processed

Based on the results of the hypothesis test in Table 6, four hypotheses were formulated to examine the effects of quality, socialization, education, and motivation on understanding. The quality of the JMO application has a coefficient of 0.128, a t-statistic value of 6.275, which is greater than the t-table (1.968), and a significance value of 0.000 < 0.05. This suggests that quality has a positive and significant effect on the level of understanding of participants in calculating OAS claims. The r-square value of 0.554 indicates that the quality of the application can explain 55.4% of the variation in understanding. Socialization has a coefficient of 0.114, a t-statistic value of 1.410, which is smaller than the t-table value of 1.968, and a significance value of 0.160 > 0.05. This means that changes in socialization do not affect the level of understanding of participants in calculating OAS claims.

Furthermore, education level shows a coefficient of 0.377, a t-statistic value of 4.427 > 1.968, and a significance of 0.000 < 0.05. These results indicate that education level has a positive and significant effect on participants' understanding of calculating OAS claims. The r-square value of 0.416 indicates that the education level factor can

explain 41.6% of the variation in understanding. Motivation has a coefficient of 0.356, with a t-statistic of $5.388 > 1.968$ and a significance of $0.000 < 0.05$. This shows that motivation also has a positive and significant effect on participants' level of understanding in calculating OAS claims. The r-square value of 0.495 indicates that motivation explains 49.5% of the variation in understanding.

Overall, the simultaneous test results show an f-count value of 129.250, which is much greater than the f-table of 2.400, and a significance value of $0.000 < 0.05$. This indicates that the quality of the application, socialization, education level, and motivation together have a significant effect on the level of participant understanding in calculating OAS claims. The total r-squared value of 0.642 indicates that the four independent variables can explain 64.2% of the variation in the level of participant understanding in calculating OAS claims, while the remaining 35.8% is attributed to other factors outside the research model.

The influence of application quality on the level of understanding

The research findings show that the quality of the JMO application has a positive effect on participants' level of understanding of calculating OAS claims. This suggests that the higher the quality of the JMO application, the better the participants' level of understanding of calculating OAS claims. This can occur because the JMO application features a user-friendly interface, easy navigation, and an intuitive display that enable participants to locate information related to balances, contributions, and OAS claim simulations quickly. When participants have easier access to data and guidance through the application, they will gain a better understanding of how OAS claim calculations are carried out. Furthermore, JMO not only functions as a transaction tool but also features educational components, including OAS claim simulations, interactive FAQs, and digital guides. These features allow participants to learn independently about the OAS calculation mechanism.

These findings align with field conditions, where SSAA for Employment participants who actively use the JMO app generally have a better understanding of balance components, contributions, and claim simulations compared to participants who have not or rarely use the app. In fact, many participants who were previously confused about the OAS calculation mechanism can now understand it independently through JMO features, such as balance checks, claim simulations, and contribution history. These features allow participants to see a direct relationship between the amount of contributions paid, the length of membership, and the value of benefits they will receive when making a claim. This indicates that the quality of information and ease of use of the app significantly contribute to increased understanding in the field. Based on the TAM perspective, the positive influence of JMO app quality on participants' level of understanding in calculating OAS claims can be explained through perceived ease of use and perceived usefulness (Tahar et al., 2020). A high-quality app increases perceived ease of use and usefulness, thereby encouraging more intensive application acceptance and use (Tao et al., 2022). This more intensive use ultimately improves participants' understanding of the OAS claim calculation mechanism.

These findings suggest that high-quality systems not only enhance technology acceptance but also contribute to enhanced user understanding of the information provided by the system. Therefore, these findings broaden the application of TAM in the context of digital public services, particularly the social security system, where the quality of information technology is a crucial factor in improving participant literacy regarding the benefits of government programs. These findings also provide important

input for SSAA for Employment and JMO application developers. Because application quality has been shown to improve participant understanding, efforts to improve the technical and functional quality of applications should be a priority. High-quality digital applications not only accelerate services but also serve as practical public education tools, so digital transformation policies must emphasize educational functions, not just administrative ones.

The influence of socialization on the level of understanding

The research findings indicate that socialization did not affect participants' ability to understand the calculation of OAS claims. This suggests that the frequency or infrequency of socialization will not impact participants' ability to understand the calculation of OAS claims. This occurs because SSAA for Employment socialization activities are often conducted through seminars, short counseling sessions, or print media that only emphasize the delivery of information, without involving direct interaction or practice in using the JMO application or calculating OAS. As a result, participants only hear the information but do not fully understand it. In many cases, the content of the socialization covers various SSAA for Employment programs simultaneously, without an in-depth explanation of the OAS claim calculation mechanism. As a result, participants receive general and broad information, but not specific and applicable information.

In the field, although SSAA for Employment regularly conducts outreach on the OAS program through seminars, counseling, brochures, and print media, many participants still report a lack of understanding of how to calculate OAS claims. This occurs because the outreach tends to be formal, one-way, and general, resulting in information that is not always easy to understand or relevant to participants' specific needs. Furthermore, sporadic or discontinuous outreach also makes it easy for participants to forget or not process information thoroughly. Many participants attend outreach activities but do not immediately apply the material provided, resulting in a limited understanding of OAS claim calculations.

TAM observed that socialization does not always directly influence the perceived usefulness or perceived ease of use of the JMO application. Participants may receive information, but without direct application through practical experience, perceptions of usefulness and ease of use remain low, thus hindering their understanding. Furthermore, direct experience with the technology has a greater influence on acceptance and understanding (Sagnier et al., 2020). Therefore, even if socialization is conducted without practical interaction with the JMO application, its impact on participants' understanding of calculating OAS claims is minimal. From a diffusion of innovations perspective, formal socialization is seen as insufficient to encourage the adoption of innovative knowledge because it does not provide participants with the opportunity to try, see the benefits, and experience the ease of use of the application. In other words, participants' understanding is more influenced by direct experience with the application than by traditional socialization (Gebremariam et al., 2024).

These findings confirm that formal or conventional outreach programs, such as seminars, brochures, or briefings, are not always sufficient to improve participant understanding. Within the framework of technology acceptance (TAM or Diffusion of Innovations), understanding tends to increase through direct experience with technology, rather than solely through verbal or printed information. SSAA for Employment needs to review its outreach methods. The focus should not be solely on conveying general information, but on how participants can directly apply the outreach

materials through the JMO app features. Participants can try, see the benefits, and learn directly through the app, effectively achieving the goals of social security education and literacy. This approach not only enhances participants' digital literacy but also optimizes budget and resource efficiency by shifting the focus of education from less effective traditional outreach to more relevant and interactive digital media. Thus, improving participant understanding of OAS claim calculations depends more on the quality of the digital experience than the frequency of formal outreach.

The influence of education level on the level of understanding

The research findings indicate that education level has a positive effect on participants' understanding of calculating OAS claims. This indicates that the higher an individual's education level, the better their understanding of calculating OAS claims. This could be because participants with higher education levels generally possess better cognitive abilities, including the ability to understand abstract concepts, analyze numbers, and process complex information. Furthermore, they also have better literacy skills, including numerical and digital literacy. Formal education equips individuals with learning strategies, critical thinking skills, and problem-solving abilities (Szabo et al., 2020). Therefore, participants with higher education are better able to read, analyze, and apply information obtained from socialization and digital experiences, resulting in a higher level of understanding.

In the field, participants with higher education tended to understand claims procedures more quickly, both through socialization and using the JMO app. They were able to read instructions, calculate claim simulations, and understand administrative requirements more easily than participants with lower levels of education. Conversely, participants with primary or secondary education often had difficulty reading application instructions, understanding claim calculations, or following administrative procedures, requiring more intensive assistance. This suggests that the numerical and digital literacy of highly educated participants facilitates their independent claim management.

From a human capital theory perspective, education is a form of investment that improves an individual's ability to manage information and technology (Rothomi & Rafid, 2023), therefore, participants with higher education are better able to understand claims calculations and utilize the JMO application effectively. Human capital theory emphasizes that individuals with higher education can process information more effectively (Deming, 2022). They are quicker to grasp instructions on socialization or digital applications like JMO, resulting in a higher level of understanding of claims calculations.

Education is an investment that improves an individual's cognitive abilities and productivity (Lövdén et al., 2020). Education enables participants to more easily process information, understand procedures, and make informed decisions regarding OAS claims. Participants with higher education tend to have better numerical and digital literacy, which makes it easier for them to understand the JMO application and claim calculations. SSAA for Employment needs to adapt educational methods to participants' education levels. For example, participants with lower educational backgrounds require simpler materials, interactive tutorials, or direct assistance, while those with higher educational backgrounds can benefit from digital tutorials or self-paced simulations. Education and outreach programs should optimize the use of the JMO application so that participants not only receive information but also have the opportunity to apply it.

The influence of motivation on the level of understanding

The research findings show that motivation has a positive influence on participants' understanding of OAS claim calculations. This indicates that an increase in an individual's motivation corresponds to an improved level of understanding of OAS claim calculations. This occurs due to an internal drive that drives a person to want to learn, understand, and master something. Motivated participants tend to be more active in seeking information, reading instructions, and attempting OAS claim simulations through the JMO application. Thus, motivation encourages participants to engage diligently in the learning process, thereby improving their understanding.

In the field, highly motivated participants tend to be more proactive in seeking information, reading guides, and using the claim simulation feature in the JMO app. They strive to independently understand the steps for calculating OAS claims, thus improving their understanding. Motivated participants typically take the socialization seriously and try out each app feature to ensure their claim is accurate. Conversely, participants with low motivation tend to pay less attention to information, rarely try simulations, and rely solely on assistance from others, resulting in poorer understanding.

Human capital theory observes that motivation enhances the effectiveness of participants' human capital (Deming, 2022). Motivated participants actively develop their skills and utilize their knowledge to understand claims procedures, resulting in higher levels of understanding than less motivated participants. Meanwhile, two-factor theory observes that motivation functions as a motivating factor (Zhang et al., 2020). Internally motivated participants are more active, responsible, and proactive in understanding OAS claims procedures, resulting in significantly higher levels of understanding compared to less motivated participants.

These findings confirm that motivation, both intrinsic and extrinsic, plays a crucial role in enhancing an individual's understanding of information and procedures, thus encouraging individuals to learn actively, take initiative, and take responsibility (Shahzad et al., 2023). Motivation can then be viewed as a form of self-investment, where motivated participants maximize their abilities and knowledge to understand OAS claim procedures. Therefore, SSAA for Employment needs to encourage participant motivation through engaging approaches, such as gamification of the JMO application, rewarding participants for active learning, or emphasizing the immediate benefits of understanding OAS claims. Furthermore, educational strategies that emphasize active participation and participant initiative are necessary. By increasing participant motivation, SSAA for Employment can reduce participant dependence on direct assistance from officers, allowing resources to be allocated more effectively and participants to become more independent in managing claims. Motivation is not merely an additional element, but a critical factor in increasing the effectiveness of education, application usage, and understanding of OAS claims in the field.

Conclusions

Participants' understanding of OAS claim calculations is influenced by a combination of internal factors and the quality of educational resources available to them. The quality of the JMO application was shown to play a significant role, as a user-friendly, informative, and accurate application enhances participants' learning effectiveness. Participants' education level also significantly contributes to their understanding of claim procedures, suggesting that higher education levels may be associated with better cognitive skills and digital literacy. Participant motivation was shown to be a key driver, with motivated participants being more active, independent,

and engaged in the application and learning process. Conversely, socialization did not have a significant effect, suggesting that providing information alone, without active involvement and motivation, is insufficient to improve understanding. Overall, these findings emphasize that participants' understanding of OAS claims is not solely influenced by the availability of information or applications, but rather by the interaction between the quality of resources, motivation, and individual abilities. Therefore, an effective educational strategy must integrate a quality application, increasing participant motivation, and a learning approach tailored to the level of education, so that participants can optimally and independently understand OAS claim procedures.

Theoretically, the finding that the quality of the JMO application, educational level, and participant motivation have a positive effect on understanding OAS claims reinforces TAM, which emphasizes the importance of perceived ease of use and perceived usefulness, and supports the theory of human capital and two-factor theory, which emphasize the role of education and motivation in improving individual understanding and performance. Conversely, the finding that socialization has no significant effect indicates that disseminating information without active participant involvement and motivation is insufficient to improve understanding, in line with the principles of diffusion of innovations theory. Practically, these results emphasize the importance of designing quality educational applications and media, increasing participant motivation through interactive and engaging approaches, and adapting educational methods to participants' educational levels. This strategy will encourage participants to become more independent in calculating OAS claims, improve the institution's operational efficiency, and strengthen the overall effectiveness of the educational program.

This study only involved participants from Dumai, so the results may not necessarily represent the entire population of OAS participants in Indonesia. Variations in demographics, work culture, and digital literacy levels outside the sample may produce different results. This study only examined four main factors (app quality, socialization, education level, and motivation), so other factors that influence participant understanding were not included. This cross-sectional study only examines relationships at a single point in time, so it cannot demonstrate a strong causal relationship or changes in participant understanding over time. The results indicate that socialization has no effect, but the quality and methods of socialization were not analyzed in depth. Future research should involve participants from various regions, occupational sectors, and educational backgrounds to ensure more representative results and generalizability to the entire population of OAS participants in Indonesia. Further research could incorporate additional factors, such as work experience, financial literacy, access to technology, social support, and other individual characteristics, to examine their impact on understanding OAS claims. Future research could employ a longitudinal design to monitor changes in participant understanding over time and evaluate the impact of interventions, such as app updates or motivational programs. Further research should assess the effectiveness of outreach methods in more detail, including the differences between online, in-person, interactive, and video-based outreach, as well as the effectiveness of modules.

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