



# The Association of Persuasive Communication and Extra-Communication Factors with Financial Literacy and Inclusion in Rural Communities

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## ABSTRACT

This study aims to develop a persuasive communication model capable of improving financial literacy and inclusion in rural communities. The study employed a mixed methods approach. A quantitative study was conducted on 174 MSMEs in Cikembar Village, Sukabumi Regency, analyzing the associations between message arguments, message periphery, message source, and extra-communication factors with financial literacy and financial inclusion, with elaboration level specified as a moderator. using Partial Least Squares Structural Equation Modeling (PLS-SEM). The qualitative study employed thematic analysis of secondary data. Qualitative data from interviews, webinars, and financial literacy program documentation were analyzed thematically to provide contextual interpretation of the quantitative findings. Message argument ( $\beta = 0.37$ ,  $p < 0.001$ ), message source ( $\beta = 0.22$ ,  $p = 0.006$ ), and extra-communication factors ( $\beta = 0.28$ ,  $p = 0.001$ ) were positively associated with financial literacy. Financial literacy was also positively associated with financial inclusion ( $\beta = 0.21$ ,  $p = 0.046$ ), while the direct association between message argument and financial inclusion was not statistically significant ( $\beta = 0.13$ ,  $p = 0.069$ ). Elaboration level significantly moderated the associations of message argument and extra-communication factors with financial inclusion, whereas message periphery was not statistically significant. The qualitative findings contextualized these relationships by identifying implementation mechanisms. The study contributes to theory by contextualizing persuasion within a communication-readiness environment, showing that financial persuasion in rural settings involves message processing and the social and institutional conditions that support the translation of financial information into literacy and inclusion.

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## 1. Introduction

Financial literacy and inclusion are essential prerequisites for community well-being and development. Literacy is a prerequisite for protecting individuals from financial loss and fraud. Meanwhile, studies show that financially inclusive households are able to increase savings, invest in education, start businesses, empower women, and improve health ([Morgan & Long, 2020](#)).

Despite this, Indonesians are still low in terms of financial literacy and inclusion. An international financial literacy survey showed Indonesia ranked 35th out of 41 countries surveyed



by (Farooq et al., 2025; Ghosh & Chaudhury, 2024). Meanwhile, a World Bank report on global financial inclusion shows that the percentage of Indonesians aged 15 and over who have a bank account is only 56%, lower than the United States, China, and India, which all have above 85% (Bank, 2025).

In 2025, the Financial Services Authority (OJK) conducted the National Survey of Financial Literacy and Inclusion (SNLIK) and obtained a financial literacy score of 66.46% and a financial inclusion index of 80.51% (Bank Indonesia, 2025; OJK, 2025). Improving literacy is becoming increasingly urgent given the growing threat to people's financial well-being if they are not equipped with adequate literacy. For example, the development of artificial intelligence technology has enabled fraud to be perpetrated against the public in increasingly cunning ways, resulting in significant financial losses. Therefore, the government, through the 2025-2029 National Medium-Term Development Plan (RPJMN 2025-2029), has set a financial literacy index target of 69.35% and inclusion of 93% for 2029, and inclusion of 98% for 2045 (Wiraraja, 2026).

Financial literacy and inclusion are weakest in rural areas because access to information and finance is much less common than in urban areas. Banks have significant potential to contribute to the success of financial inclusion programs by increasing community literacy and inclusion through persuasive campaigns. Banks already have a tangible physical presence in rural communities and are trusted as a stable source of savings and credit distribution. Theoretically, financial inclusion can be achieved through education that improves citizens' financial literacy. Financial literacy will increase people's willingness to participate in the formal financial sector (Ozili, 2020). This suggests that improving financial inclusion in rural communities requires more than expanding access; it also requires communication processes that enable individuals to understand, evaluate, and act on financial information.

However, studies on the factors driving financial literacy and inclusion in rural communities are still rare. Logically, these factors include communication and extra-communication (contextual) factors. Communication factors include the message source, the message itself, and the message recipient. Meanwhile, extra-communication factors include subjective norms, financial condition, perceived ease of access, and social presence (Chang et al., 2020; Cyr et al., 2018). For example, the lack of collateral for borrowing and the fear of losing items that are, by definition, few, are other factors contributing to low financial inclusion in rural communities (Bettin et al., 2023). If poor communities gain access to banking, for example by eliminating initial fees, they will learn to use the banking system and trust banks, thus tending to be more enthusiastic about saving (Bettin et al., 2023). However, empirically, the existing evidence is fragmented across different theoretical traditions and outcome domains (Afifi et al., 2023; Jena, 2025; Siddiqui et al., 2025). These studies combined communication variables with psychological variables but did not employ the ELM as a framework to explain how communication and extra-communication factors operate differently depending on the level of elaboration.

The enormous potential that banks can provide in financial inclusion and the theoretical and empirical gaps on this issue prompted researchers to propose research focused on communication strategies to enhance the role of banks in poverty alleviation and empower rural communities to own bank accounts. Therefore, the aim of this research is to develop a model for changing attitudes toward financial literacy and inclusion in rural communities that can be practically translated into a financial inclusion communication strategy.

To explain how communication factors influence attitudes toward financial literacy and inclusion, this study adopts the Elaboration Likelihood Model (ELM), which provides a mechanism-based account of how individuals process persuasive information under different levels of

elaboration ([Littlejohn et al., 2017](#)). The ELM is particularly relevant to the rural financial context because the effectiveness of financial messages may depend on whether recipients critically evaluate message arguments or rely on peripheral cues when motivation or ability to process information is limited.

According to the elaboration likelihood model (ELM) theory, a person's attitude can be changed through the central route and the peripheral route. Elaboration, or critical thinking, is more likely to occur when information is processed through the central route than the peripheral route. Attitudes formed through the central route are more likely to be sustained than those formed through the peripheral route. The ELM theory is a theory of attribution and judgment.

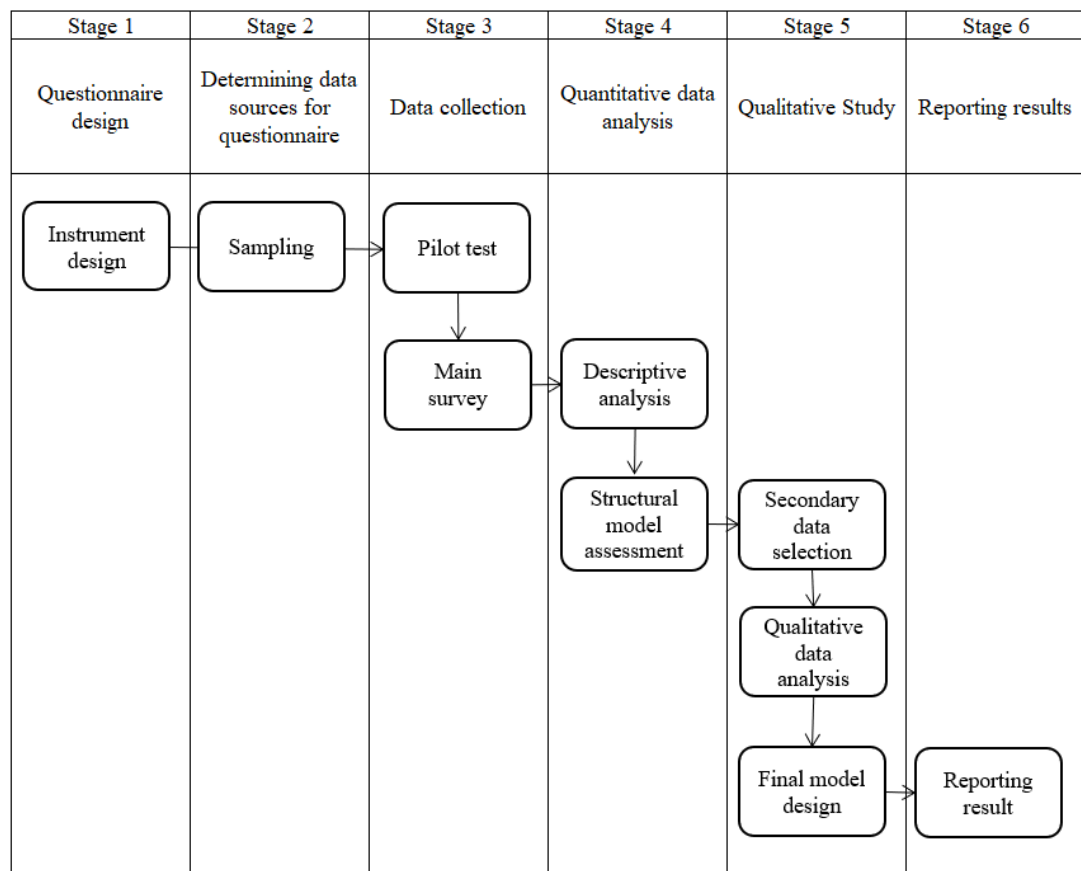
In ELM theory, the central route focuses on the quality of a persuasive message, requiring the recipient to critically consider the arguments embedded in the message and consider their relative merits and relevance ([Petty et al., 2009](#)). If a villager is highly motivated and has better access to the message, the individual is more likely to rely on the quality of the message's arguments. The peripheral route occurs when the villager is unable or unwilling to engage in much thought about the message, leading the recipient to rely on heuristic cues in decision-making, such as identification with the source, symbols, politeness, and aesthetics. Since its proposal in 1984, the ELM has undergone significant development. The most significant development is that the central route has two additional roles besides argumentation: validation of thought and bias ([Susmann et al., 2022](#)).

The model for changing attitudes toward financial literacy and inclusion in rural communities developed in this study places the research factors within an expanded ELM framework with extra-communication factors. In this model, the central route is the message argument, while the peripheral route encompasses the message source and the message periphery. The level of elaboration serves as a moderating variable that relating to the strength of the independent variables on financial inclusion.

Accordingly, this study contributes to the literature by developing an extended ELM framework that integrates distinct communication factors: message argument, message source, and message-peripheral cues, with extra-communication factors relevant to rural financial participation. More importantly, the study conceptualizes elaboration level as a boundary condition that determines the strength of these relationships with financial inclusion. This framework extends existing integrated communication models by moving beyond the identification of direct determinants toward an explanation of when particular communication strategies are more or less effective in promoting financial literacy and financial inclusion among rural communities.

## 2. Method

This study employed a sequential explanatory mixed methods design, with the research workflow illustrated in [Fig. 1](#). According to [Sugiyono & Lestari \(2021\)](#), the sequential explanatory design integrates quantitative and qualitative methods in a sequential manner, whereby the quantitative phase is conducted first and followed by a qualitative phase to provide a deeper explanation and interpretation of the quantitative findings. Accordingly, this study began with a quantitative phase involving a formal survey, and the collected data were analyzed using Structural Equation Modeling (SEM). Subsequently, secondary data were collected and analyzed qualitatively to explain and enrich the quantitative results. The Findings of both methods were integrated to develop the final of research model.



**Fig. 1. Research Stage Flowchart**

The quantitative study focused on rural communities' evaluation of bank persuasion using face-to-face interactions and advertising banners. Respondents were asked to complete a questionnaire assessing message arguments, message sources, and message periphery. In addition, respondents were also asked to complete a questionnaire regarding extra-communication factors, level of elaboration, financial literacy, and financial inclusion. Message arguments, message periphery, message sources, and extra-communication factors were positioned as independent variables predicting financial literacy and financial inclusion and interacting with the level of elaboration.

ELM distinguishes between substantive message processing and peripheral cues. In the present context, message arguments represent substantive information that may require greater cognitive evaluation, whereas message periphery and message source represent characteristics that may function as peripheral cues. Extra-communication factors represent contextual conditions surrounding the persuasion process, including prior knowledge, perceived ease, social presence, subjective norms, and financial conditions.

Based on this theoretical framework, the following hypotheses were tested.

H1: Message arguments are positively associated with financial literacy.

H2: Message periphery is positively associated with financial literacy.

H3: Extra-communication is positively associated with financial literacy.

H4: Message source is positively associated with financial literacy.

H5: Elaboration level moderates the association between message arguments and financial inclusion.

- H6: Elaboration level moderates the association between message periphery and financial inclusion.
- H7: Elaboration level moderates the association between extra-communication and financial inclusion.
- H8: Elaboration level moderates the association between message source and financial inclusion.
- H9: Message arguments are positively associated with financial inclusion.
- H10: Message periphery is positively associated with financial inclusion.
- H11: Extra-communication is positively associated with financial inclusion.
- H12: Message source is positively associated with financial inclusion.
- H13: Financial literacy is positively associated with financial inclusion.

Message argument indicators formulated from the literature review include value appeal, argument quality, morals in the message, message language (evaluative vs. factual), message sidedness, message discrepancy (pro vs. contra attitude), message aesthetics, message completeness, message accuracy, and message frequency (Cyr et al., 2018; Everett et al., 2020; Wolf et al., 2020). Meanwhile, the message periphery contains two indicators, namely message aesthetics and message frequency (Chang et al., 2020). Extra-communication variables include subjective norms, financial or health conditions, perceived ease, social presence, and prior knowledge (Ajzen, 2020; Susmann et al., 2022).

Message source indicators include source bias, source honesty, source expertise, and source relevance to the message (Chang et al., 2020; Susmann et al., 2022). The level of elaboration refers to Miller et al. (2019) who measured the level of elaboration using three indicators: interest, awareness, and cognitive engagement. The financial literacy indicator assesses respondents' tendency to evaluate risks, check legality, and avoid illegal financial practices. The indicator for attitude change towards financial inclusion was created independently according to the benefits of financial inclusion for individuals, namely providing an easy way to save, pay bills, meet emergency needs, manage incoming and outgoing money, gain access to loans, secure retirement, and facilitate business (Ozili, 2020). Details of the research items are presented in Table 1.

Table 1. Operational

| Variables         | Operational definition                                                                                    | Code | Indicator                                    |
|-------------------|-----------------------------------------------------------------------------------------------------------|------|----------------------------------------------|
| Message Arguments | Communication factors originating from the message that can be used to determine the truth of the message | AP01 | Religious values                             |
|                   |                                                                                                           | AP02 | Human values                                 |
|                   |                                                                                                           | AP03 | National values                              |
|                   |                                                                                                           | AP04 | The value of mutual cooperation              |
|                   |                                                                                                           | AP05 | Value of justice                             |
|                   |                                                                                                           | AP06 | Informative                                  |
|                   |                                                                                                           | AP07 | Beneficial                                   |
|                   |                                                                                                           | AP08 | Worth                                        |
|                   |                                                                                                           | AP09 | Persuasive                                   |
|                   |                                                                                                           | AP10 | Utilitarian (mutual benefit)                 |
|                   |                                                                                                           | AP11 | Draw your own conclusions                    |
|                   |                                                                                                           | AP12 | Comparing products                           |
|                   |                                                                                                           | AP13 | Comparing fates                              |
|                   |                                                                                                           | AP14 | Showing off one's own advantages             |
|                   |                                                                                                           | AP15 | Pointing out the shortcomings of competitors |
|                   |                                                                                                           | AP16 | Deep                                         |

| Variables                   | Operational definition                                                                                       | Code | Indicator                                                                   |
|-----------------------------|--------------------------------------------------------------------------------------------------------------|------|-----------------------------------------------------------------------------|
| Message periphery           | Communication factors originating from the message that cannot be used to determine the truth of the message | AP17 | Expanding                                                                   |
|                             |                                                                                                              | AP18 | Correct                                                                     |
|                             |                                                                                                              | AP19 | Unambiguous                                                                 |
|                             |                                                                                                              | AP20 | Accurate                                                                    |
|                             |                                                                                                              | PP01 | Courtesy                                                                    |
|                             |                                                                                                              | PP02 | Softness                                                                    |
|                             |                                                                                                              | PP03 | Interesting                                                                 |
|                             |                                                                                                              | PP04 | Pleasant                                                                    |
|                             |                                                                                                              | PP05 | Number of invitations                                                       |
|                             |                                                                                                              | EK01 | Loved ones                                                                  |
|                             |                                                                                                              | EK02 |                                                                             |
|                             |                                                                                                              | EK03 | Generalized others                                                          |
|                             |                                                                                                              | EK04 | Financial condition                                                         |
|                             |                                                                                                              | EK05 | Easy                                                                        |
|                             |                                                                                                              | EK06 | Own decision                                                                |
| Extra-communication factors | Contextual factors that contribute to determining attitude change through persuasion                         | EK07 | Not complicated                                                             |
|                             |                                                                                                              | EK08 | The presence of other people from the communicator's side                   |
|                             |                                                                                                              | EK09 | The presence of other people from the communicator's side                   |
|                             |                                                                                                              | EK10 | Social information                                                          |
|                             |                                                                                                              | EK11 | Know the benefits                                                           |
|                             |                                                                                                              | EK12 | Know the advantages and disadvantages                                       |
|                             |                                                                                                              | EK13 | Initial knowledge                                                           |
|                             |                                                                                                              | SP01 | The communicator's excessive tendency to persuade                           |
|                             |                                                                                                              | SP02 | The perception that the communicator is trustworthy                         |
|                             |                                                                                                              | SP03 | The perception that the communicator is an expert in finance                |
|                             |                                                                                                              | SP04 | The perception that the communicator understands the content of the message |
| Message source              | Communication factors originating from the communicator                                                      | TE01 | Interested in listening                                                     |
|                             |                                                                                                              | TE02 | Pay close attention                                                         |
|                             |                                                                                                              | TE03 | Actively involve yourself                                                   |
|                             |                                                                                                              | LK01 | Conducting research                                                         |
|                             |                                                                                                              | LK02 | Understanding business                                                      |
| Level of Elaboration        | How deeply the respondent's thoughts are involved in communication                                           | LK03 | Examination with OJK                                                        |
|                             |                                                                                                              | LK04 | Bad influences                                                              |
|                             |                                                                                                              | LK05 | Demotivation                                                                |
|                             |                                                                                                              | LK06 | Moderation                                                                  |
|                             |                                                                                                              | LK07 | Transparency                                                                |
|                             |                                                                                                              | LK08 | Legal self-control;i behind:                                                |
|                             |                                                                                                              | LK09 | Digital footprint                                                           |
|                             |                                                                                                              | LK10 | Official app and website                                                    |
|                             |                                                                                                              | LK11 | Profit sharing                                                              |
| Financial literacy          | Changing attitudes towards safe financial decision-making practices.                                         | IK01 | Save                                                                        |
|                             |                                                                                                              | IK02 | Paying bills                                                                |
|                             |                                                                                                              | IK03 | Meeting emergency needs                                                     |
|                             |                                                                                                              | IK04 | Managing incoming and outgoing money                                        |
|                             |                                                                                                              | IK05 | Get access to loans                                                         |
|                             |                                                                                                              | IK06 | Guaranteeing old age                                                        |
|                             |                                                                                                              | IK07 | Launching a business                                                        |
| Financial inclusion         | Changing attitudes towards the use of formal financial services.                                             |      |                                                                             |
|                             |                                                                                                              |      |                                                                             |
|                             |                                                                                                              |      |                                                                             |
|                             |                                                                                                              |      |                                                                             |
|                             |                                                                                                              |      |                                                                             |
|                             |                                                                                                              |      |                                                                             |
|                             |                                                                                                              |      |                                                                             |

The survey was conducted on MSMEs in Cikembar Village, Cikembar District, Sukabumi Regency. This village was chosen because, despite its relatively high economic activity, various studies [Mustanir et al. \(2024\)](#); [Ramdani \(2023\)](#) and local government reports in [BPS \(2025\)](#) shows that there are still socio-economic vulnerabilities, such as high unemployment among local residents amidst the development of industrial areas, the dominance of small-scale farming businesses with limited access to capital and markets, and the still limited ability of some people to improve their economic welfare.

The sample size was determined by calculating an a priori sample of the structural equation model using software from ([Soper, 2022](#)). The parameters used for the calculation included seven latent variables, while the observation variables, namely the measurement items in the questionnaire, consisted of 40 indicators. Meanwhile, other parameters were set as commonly used parameters, namely 0.3 for a medium impact size, 0.8 for a statistical power level, and 0.05 for a probability level. The calculation resulted in a total of 174 respondents. Respondents were randomly selected from MSMEs in Cikembar village.

The questionnaire results were analyzed using a partial least square structural equation model (PLS-SEM) derived from the research conceptual framework with Smart-PLS software version 4.0. PLS-SEM was selected because the objective of the quantitative phase was primarily predictive and explanatory: the study sought to examine a relatively complex model involving multiple latent constructs, a mediating construct, and moderation relationships. PLS-SEM is appropriate for models involving multiple dependent relationships and latent variables measured through multiple indicators, particularly when the research emphasizes prediction and theory development rather than covariance-based model confirmation. The choice of PLS-SEM was also appropriate given the model complexity relative to the available sample. The structural model included seven latent constructs, multiple simultaneous relationships, and interaction terms for moderation. In addition, PLS-SEM does not require multivariate normality as a strict assumption in the same manner as covariance-based SEM, making it suitable when the distributional characteristics of survey responses may depart from multivariate normality. The sample of 174 respondents met the minimum requirement established through the a priori power calculation and was therefore considered adequate for estimating the proposed model.

The construct validity and reliability of the instrument were evaluated using a PLS-SEM measurement model based on survey data that included testing the loading factor, average variance extracted (AVE), composite reliability, and discriminant validity (Fornell-Larcker criteria). Items with a loading factor less than 0.70 were not used for further model development. Acceptable criteria for other indicators include average variance extracted (AVE) > 0.50, composite reliability > 0.70, and the diagonal component in the Fornell-Larcker matrix must be higher than the vertical and horizontal components. Indicators that did not satisfy the required measurement criteria were considered for removal. Indicator deletion was conducted only when the remaining indicators continued to represent the conceptual domain of the construct and the removal did not compromise content validity.

After the discriminant validity test is conducted, the structural model was assessed to test the hypothesized relationships. Before interpreting the structural relationships, the model was assessed for collinearity, explanatory power, and predictive relevance using variance inflation factor (VIF), R<sup>2</sup>, and the Q<sup>2</sup>, respectively. [Hair et al. \(2019\)](#) suggest that acceptable parameters are VIF < 3.0, R<sup>2</sup> > 0.25, and Q<sup>2</sup> > 0. Statistical significance of the hypothesized relationships was assessed using bootstrapping with 5,000 resamples. The moderation hypotheses were tested by

estimating interaction terms between elaboration level and the respective communication constructs. Significant interaction coefficients were interpreted as evidence that the strength of the statistical association between the relevant communication construct and financial inclusion varied according to the level of elaboration. Because the study uses cross-sectional survey data, statistically significant structural paths are interpreted as associations within the proposed theoretical model rather than as evidence of causal effects.

The qualitative data used secondary data from three documents. The first is a 40-minute 11-second video containing an interview with the director of Rural Bank (BPR) Sukabumi regarding the programs implemented by the bank to improve financial inclusion and literacy in Sukabumi Regency. The second is the text of the online news Radar Sukabumi and Sukabumi Now regarding the January 2026 Regional Financial Access Acceleration Team (TPAKD) Webinar. The third is the text of the community service report from Muhammadiyah University of Sukabumi regarding improving financial literacy and inclusion for high school and vocational school students. The purpose of this secondary data collection is to find clarity on the mechanisms that allow quantitative research results to be explained contextually, as the function of qualitative research cannot be replaced by quantitative research. Qualitative data analysis was conducted using thematic analysis.

### 3. Result and Discussion

#### Empirical Findings

##### Quantitative Results

A wealth of information can be extracted from descriptive statistics on variables. In this case, since the goal of this research is to develop a model that can be practically translated into a financial inclusion communication strategy, low-value aspects need to be highlighted for practical implications. The most important indicators are the standard deviation and mean. The higher the standard deviation, the more diverse the respondents' answers, and the more policy action is needed to reduce this standard deviation. Meanwhile, a low mean indicates that achievement still needs improvement.

The results of the survey responses showed that the item with the highest standard deviation for each variable was 1.107 for the message argument which reads "the bank compares the fate of people who are customers with people who are not bank customers"; 0.943 for the message peripheral variable which reads "the bank conveys information in a pleasant way"; 1.094 for the message source variable, namely the item which reads "the advertisement or invitation is excessive"; 1.155 for the extra-communication variable, on the item which reads "Managing the requirements to become a bank customer is not complicated"; 1.223 for the elaboration level variable, on the item which reads "very interested in listening to what the bank explains"; 0.836 for the financial literacy attitude variable which says "when receiving an investment or loan offer, we must first check whether the organization is registered with the OJK or not"; and 1.020 for the financial inclusion variable which says "becoming a bank customer is useful for smoothing business". In general, the items with the highest standard deviation are also the items with the lowest mean. This was true for all variables except changes in financial inclusion attitudes. For this variable, the item with the lowest mean was "being a bank customer is more beneficial because it makes our retirement more secure."

At the variable level, the mediator variable for changes in financial literacy attitudes had a high mean score of 4.31. This value was the highest of all the study variables. This high value indicates that rural communities have relatively good knowledge and awareness of financial crime, an

indicator of financial literacy. After selecting items using construct validity parameters (loading factor and average variance extracted), composite reliability, and discriminant validity (Fornell-Larcker criteria), it was decided to remove a number of indicators from the construct variable, as shown in Table 2 and Table 3. The removed indicators still have other indicators that measure the same conceptual dimensions so that their removal does not reduce the content validity of the financial literacy construct. The final results show that all loadings are above 0.70, composite reliability is above 0.70, and AVE is above 0.50.

**Table 2.** Indicator Loading Factor, Composite Reliability, and Average Variance Extracted

| Construct           | Items | Loadings | Composite reliability | AVE  |
|---------------------|-------|----------|-----------------------|------|
| Message Argument    | AP04  | 0.73     | 0.91                  | 0.58 |
|                     | AP06  | 0.75     |                       |      |
|                     | AP10  | 0.80     |                       |      |
|                     | AP11  | 0.73     |                       |      |
|                     | AP13  | 0.78     |                       |      |
|                     | AP15  | 0.80     |                       |      |
|                     | AP16  | 0.81     |                       |      |
| Message Periphery   | PP01  | 0.89     | 0.90                  | 0.81 |
|                     | PP05  | 0.91     |                       |      |
| Extra-Communication | EK02  | 0.85     | 0.93                  | 0.77 |
|                     | EK04  | 0.89     |                       |      |
|                     | EK10  | 0.88     |                       |      |
|                     | EK13  | 0.91     |                       |      |
| Message Source      | SP01  | 0.82     | 0.93                  | 0.76 |
|                     | SP02  | 0.88     |                       |      |
|                     | SP03  | 0.88     |                       |      |
|                     | SP04  | 0.92     |                       |      |
| Elaboration Level   | TE01  | 0.85     | 0.90                  | 0.75 |
|                     | TE02  | 0.91     |                       |      |
|                     | TE03  | 0.83     |                       |      |
| Financial Literacy  | LK01  | 0.87     | 0.97                  | 0.76 |
|                     | LK02  | 0.86     |                       |      |
|                     | LK03  | 0.87     |                       |      |
|                     | LK04  | 0.84     |                       |      |
|                     | LK05  | 0.90     |                       |      |
|                     | LK06  | 0.85     |                       |      |
|                     | LK07  | 0.87     |                       |      |
|                     | LK08  | 0.88     |                       |      |
|                     | LK09  | 0.87     |                       |      |
|                     | LK10  | 0.87     |                       |      |
|                     | LK11  | 0.89     |                       |      |
| Financial Inclusion | IK01  | 0.79     | 0.94                  | 0.67 |
|                     | IK02  | 0.80     |                       |      |
|                     | IK03  | 0.83     |                       |      |
|                     | IK04  | 0.81     |                       |      |
|                     | IK05  | 0.88     |                       |      |
|                     | IK06  | 0.77     |                       |      |
|                     | IK07  | 0.87     |                       |      |

**Table 3.** Fornell-Larcker matrix

|                          | AP          | OAK         | IK          | LK          | PP          | SP          | TE          |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Message Argument (AP)    | <b>0.80</b> |             |             |             |             |             |             |
| Extra-communication (EK) | 0.71        | <b>0.88</b> |             |             |             |             |             |
| Financial Inclusion (IK) | 0.69        | 0.82        | <b>0.85</b> |             |             |             |             |
| Financial Literacy (LK)  | 0.79        | 0.82        | 0.81        | <b>0.87</b> |             |             |             |
| Message Periphery (PP)   | 0.64        | 0.79        | 0.76        | 0.76        | <b>0.90</b> |             |             |
| Message Source (SP)      | 0.62        | 0.81        | 0.76        | 0.78        | 0.81        | <b>0.87</b> |             |
| Elaboration Level (TE)   | 0.59        | 0.69        | 0.71        | 0.66        | 0.73        | 0.75        | <b>0.87</b> |

Furthermore, it was discovered that the model did not meet the multicollinearity requirements of the VIF test. The initial model showed elevated collinearity associated with the interaction terms for message periphery and message source. Following assessment of the interaction specification and collinearity diagnostics, these two interaction terms were excluded from the final model. The exclusion was treated as a model-specification adjustment rather than as evidence regarding the corresponding hypotheses (H6 and H8), leaving only the elaboration level moderation path between message arguments and extra-communication factors with financial inclusion. After this, the model met the goodness-of-fit criteria for the VIF criteria, even using a more moderate *threshold*, namely  $VIF < 5.0$ , as shown in Table 4 and Table 5.

**Table 4.** Results of the Item VIF Test (Outer VIF) and Revised Loading Factor

| Variables            | Item | Loading Factor | VIF  |
|----------------------|------|----------------|------|
| Message Arguments    | AP04 | 0.74           | 1.60 |
|                      | AP10 | 0.81           | 1.72 |
|                      | AP15 | 0.86           | 2.29 |
| Message Periphery    | AP16 | 0.78           | 1.94 |
|                      | PP04 | 0.89           | 1.64 |
|                      | PP05 | 0.91           | 1.64 |
| Extra-communication  | EK02 | 0.84           | 2.13 |
|                      | EK04 | 0.88           | 2.63 |
|                      | EK10 | 0.87           | 2.72 |
| Message Source       | EK13 | 0.90           | 3.25 |
|                      | SP01 | 0.82           | 1.93 |
|                      | SP02 | 0.87           | 2.70 |
| Level of Elaboration | SP03 | 0.87           | 2.63 |
|                      | SP04 | 0.91           | 3.38 |
|                      | TE01 | 0.85           | 2.60 |
| Financial Literacy   | TE02 | 0.91           | 3.18 |
|                      | TE03 | 0.82           | 1.59 |
|                      | LK02 | 0.86           | 3.13 |
| Financial Inclusion  | LK03 | 0.87           | 3.53 |
|                      | LK04 | 0.85           | 3.47 |
|                      | LK06 | 0.86           | 3.27 |
|                      | LK07 | 0.87           | 3.43 |
|                      | LK09 | 0.87           | 3.54 |
|                      | LK10 | 0.86           | 3.23 |
|                      | LK11 | 0.88           | 3.72 |
|                      | IK03 | 0.86           | 2.33 |
|                      | IK04 | 0.80           | 1.76 |
|                      | IK06 | 0.82           | 2.15 |
|                      | IK07 | 0.90           | 2.81 |

**Table 5.** Results of the VIF Test for Relationships (Inner VIF)

| Variables                         | Financial Inclusion | Financial Literacy |
|-----------------------------------|---------------------|--------------------|
| Message Arguments                 | 3.22                | 2.07               |
| Extra-communication               | 4.71                | 3.95               |
| Financial Inclusion               |                     |                    |
| Financial Literacy                | 4.72                |                    |
| Message Argument Moderation       | 2.50                |                    |
| Extra Moderation of Communication | 3.18                |                    |
| Message Periphery                 | 3.72                | 3.44               |
| Message Source                    | 4.44                | 3.62               |
| Level of Elaboration              | 2.63                |                    |

The results also show that both dependent variables have R<sup>2</sup> values that meet the requirements, namely 0.77 for financial inclusion and 0.78 for financial literacy, as shown in Table 6. Meanwhile, the results in Table 7 show that Q<sup>2</sup> for both the dependent and mediating variables are both above zero, indicating that the model has predictive relevance.

**Table 6.** R<sup>2</sup> Test Results

| Variables           | R Square | R Square Adjusted |
|---------------------|----------|-------------------|
| Financial Inclusion | 0.77     | 0.76              |
| Financial Literacy  | 0.78     | 0.77              |

**Table 7.** Q<sup>2</sup> Test Results

| Variables           | SSO  | SSE    | Q <sup>2</sup> = (1 - SSE/SSO) |
|---------------------|------|--------|--------------------------------|
| Financial Inclusion | 696  | 323.19 | 0.53                           |
| Financial Literacy  | 1392 | 583.83 | 0.58                           |

After the model met the specified assessment criteria, the final model was used to test the hypothesis. The results of the hypothesis testing are shown in Table 8. These results revealed 12 relationships, eight of which were statistically significant ( $p < 0.05$ ).

**Table 8.** Path Coefficients

|                                                          | Coeff. | Mean  | Sd. Dev | t    | P     |
|----------------------------------------------------------|--------|-------|---------|------|-------|
| Message Argument -> Financial Inclusion                  | 0.13   | 0.13  | 0.07    | 1.82 | 0.069 |
| Message Periphery -> Financial Inclusion                 | 0.13   | 0.12  | 0.10    | 1.25 | 0.209 |
| Extra-communication -> Financial Inclusion               | 0.27   | 0.25  | 0.11    | 2.47 | 0.014 |
| Message Source -> Financial Inclusion                    | -0.01  | -0.01 | 0.09    | 0.15 | 0.878 |
| Moderation of Message Argument -> Financial Inclusion    | 0.11   | 0.10  | 0.05    | 2.05 | 0.041 |
| Moderation of Extra-Communication -> Financial Inclusion | -0.16  | -0.16 | 0.06    | 2.75 | 0.006 |
| Message Argument -> Financial Literacy                   | 0.37   | 0.36  | 0.07    | 4.66 | 0.000 |
| Message Periphery -> Financial Literacy                  | 0.10   | 0.11  | 0.07    | 1.53 | 0.127 |
| Extra-communication -> Financial Literacy                | 0.28   | 0.27  | 0.08    | 3.33 | 0.001 |
| Message Source -> Financial Literacy                     | 0.22   | 0.22  | 0.08    | 2.75 | 0.006 |
| Financial Literacy -> Financial Inclusion                | 0.21   | 0.20  | 0.10    | 2.00 | 0.046 |
| Elaboration Level -> Financial Inclusion                 | 0.18   | 0.19  | 0.07    | 2.49 | 0.013 |

Table 8 shows that the strongest path was from message argument to financial literacy ( $\beta = 0.37$ ), whereas the weakest was the path from message source to financial inclusion ( $\beta = -0.01$ ). These results indicate that message argument had the strongest estimated association with financial literacy among the paths examined. The results are visually shown in Fig. 2. Further analysis using simple slope analysis reveals that the message argument–financial inclusion relationship is substantially stronger at high elaboration levels (+1 SD,  $\beta = 0.24$ ) than at low elaboration levels (–1 SD,  $\beta = 0.02$ ), indicating that higher elaboration strengthens the positive effect of message argument on financial inclusion. Meanwhile, for extra-communication–financial inclusion relationship, simple slope analysis reveals that the relationship is substantially stronger at low elaboration levels (–1 SD,  $\beta = 0.43$ ) than at high elaboration levels (+1 SD,  $\beta = 0.11$ ), indicating that higher elaboration weakens the positive effect of extra-communication on financial inclusion.

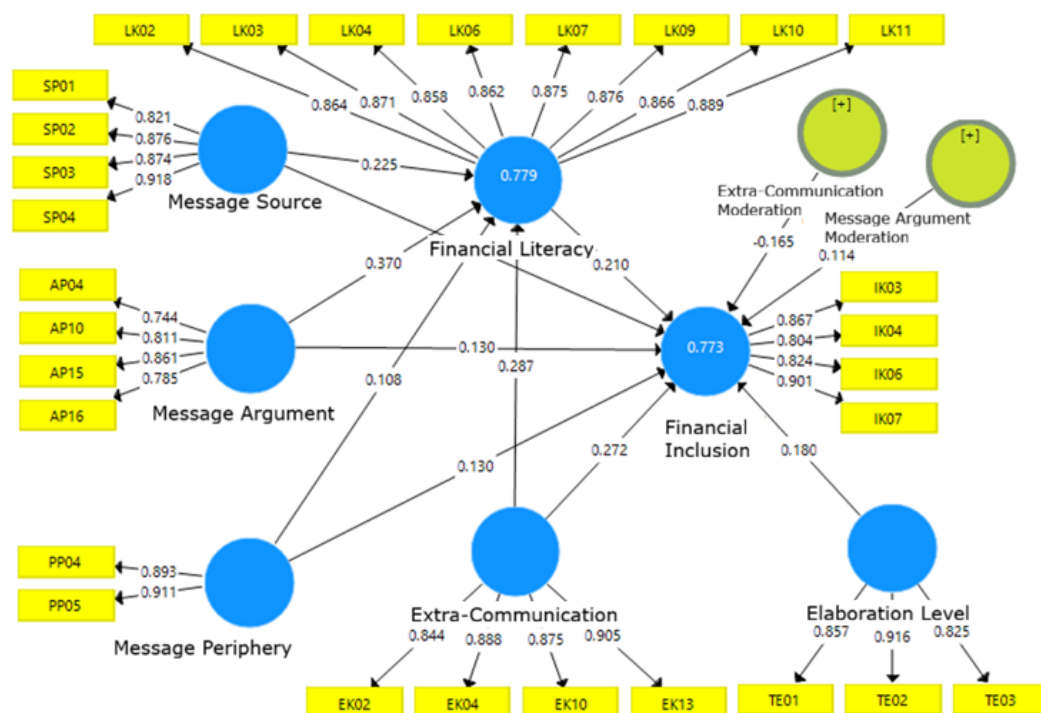


Fig. 2. Results of Structural Model Analysis

### Qualitative Results

The qualitative data showed a consistent pattern with the quantitative results. Analysis of the BPR inclusion campaign data showed that most BPR communications focused on the dangers of illegal online loans (pinjol), the importance of OJK-licensed institutions, the importance of a Business Identification Number (NIB), the importance of financial responsibility, and how to manage a business. Analysis of the TPAKD Islamic finance webinar showed that the communications included educational messages and the involvement of various parties, including the West Java OJK, Muhammadiyah University of Sukabumi, Bank Syariah Indonesia, the Sukabumi Regency Government, the Merah Putih Village Cooperative, and the TPAKD. The news report stated: "...farmers, fishermen, and MSMEs not only know about banks but can also access affordable, productive, and safe financing." Logically, sharia literacy will foster an understanding of safe financing, enabling the public to access formal financing and thus avoid illegal online loans. The webinar revealed that the Mubarakah credit program increases public access to formal financial services by establishing relationships with official financial institutions, facilitating access to

productive financing, reducing dependence on loan sharks, and increasing MSME access to the formal financial system. The Muhammadiyah program includes needs observation, initial discussions, seminars, pretests, posttests, school collaboration, university collaboration, BEI collaboration, and follow-up through investment galleries.

After axial coding, all codes were grouped into three themes, as shown in Table 9. The first theme is the theme of communication quality as a driver of literacy, which illustrates that the effectiveness of communication is determined more by the substance of the information conveyed than by the aesthetic aspects or packaging of the communication. This theme shows that attitude change is formed more through the quality of argumentation, applicable information, and the credibility of the communication source, while peripheral cues such as the aesthetics of delivery, communication style, or frequency of delivery are not the main determinants. The second theme is the social environment as a literacy reinforcer while the third theme is literacy as a mechanism for protection and behavior change, which shows in Table 9 that literacy is a mechanism that links communication with changes in financial behavior.

**Table 9.** Results of Theme Analysis

| Theme                                                               | Axial code                                                                                                       | Open code                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Communication quality as a driver of literacy                       | Literacy education<br>Message quality<br>Source credibility<br>Moral and religious values<br>Contextual learning | Webinar, formal education, applied materials, knowledge transfer, message quality, investment education, regulators, academics, OJK, Islamic banks, source expertise, religious values, moral values, Islamic economics, participatory learning, service learning, continuing education |
| Social Environment as a Strengtheners of Literacy towards Inclusion | Multi-party collaboration<br>Social factors<br>Mentoring<br>Ease of access<br>community empowerment              | Local government, cooperatives, families, communities, smart practices, mentoring, monitoring, training, facilitators, opinion leaders, ease of administration, access to financing, simple requirements, productive financing, MSMEs, farmers, fishermen                               |
| Literacy as a Mechanism for Protection and Behavior Change          | Risk protection<br>Behavioral changes<br>Rational financial decisions<br>Financial inclusion<br>welfare          | Illegal loans, fraudulent investments, loan sharks, online gambling, risk mitigation, consumer protection, financial decisions, using banks, saving, payment discipline, welfare, economic development, financial inclusion, financial resilience                                       |

Overall, the quantitative results indicate that communication-related variables are more consistently associated with financial literacy than with financial inclusion, while financial literacy is positively associated with financial inclusion. This pattern suggests a potential indirect pathway through financial literacy, although mediation was not formally tested in this study. The three qualitative data sources provide contextual evidence consistent with a possible sequence from financial understanding to financial-service use, thereby complementing the quantitative findings. The qualitative findings provide contextual explanations for several patterns identified in the quantitative model. Analysis of the BPR financial inclusion campaign, the TPAKD Islamic finance webinar, and the Muhammadiyah financial literacy program revealed that financial communication was predominantly organized around substantive educational content. These programs addressed illegal online lending, the legality of financial institutions, financial responsibility, business management, investment, productive financing, and consumer protection. Communication was therefore not limited to promotional messages but frequently involved information intended to enable participants to evaluate financial risks and make more informed decisions.

This qualitative pattern corresponds with the quantitative finding that message argument had the strongest association with financial literacy ( $\beta = 0.370$ ,  $p < 0.001$ ). The qualitative evidence suggests that the substantive content of financial communication was supported by applied learning activities, investment education, regulatory information, and explanations from institutions perceived as knowledgeable. These activities provide a contextual explanation for why argument quality may be particularly relevant to financial literacy in the study setting.

The qualitative findings also help explain the significant relationship between extra-communication factors and both financial literacy and financial inclusion. The programs examined did not rely on a single communication encounter. They involved mentoring, collaboration among institutions, facilitators, community organizations, local government, universities, financial institutions, and follow-up activities. These findings indicate that communication in rural financial inclusion is embedded in a broader social environment in which participants receive repeated opportunities to ask questions, obtain assistance, observe practices, and translate information into financial decisions.

These results are also consistent with [Akande et al. \(2023\)](#) structural model, which demonstrates a direct pathway from financial literacy to financial inclusion in agrarian South African communities. However, the current study adds a psychological explanation based on the ELM, suggesting that changes in inclusion behavior do not emerge directly, but rather are initiated by a process of information elaboration, literacy formation, and ultimately the decision to use formal financial services.

The findings of this study are also consistent with various empirical studies in the international context. [Hasan et al. \(2021\)](#) found that financial literacy significantly associated with access to banking, microfinance, and financial technology services in rural Bangladesh. More broadly, [Lyons & Kass-Hanna \(2021\)](#) showed that households with higher financial literacy tend to have better savings behavior and rely less on informal loans. Furthermore, message argument was significantly associated with financial literacy, but its direct relationship with financial inclusion did not reach the conventional 5% significance level. The strong relationship of message arguments on changes in financial literacy attitudes indicates that respondents were in a state of high elaboration potential. This is understandable, given that the issue raised was financial, which is relevant to almost all respondents.

Extra-communication variables were also found to significantly related with changes in attitudes toward financial literacy and financial inclusion. Thematic analysis provided an explanation of the mechanisms of this relationship. The various financial literacy programs analyzed demonstrated that communication success is determined not only by the quality of the message content but also by the community's readiness to receive it. Thematic analysis revealed that various financial literacy programs fostered these four conditions through ongoing mentoring, interagency collaboration, the involvement of community leaders, and direct interaction with participants.

Therefore, mentoring and collaboration are not dimensions of the communication readiness context, but rather implementation mechanisms that shape social norms, expand prior knowledge, increase social presence, and help communities achieve economic readiness. This mechanism explains why the communication readiness context variable significantly associated with changes in attitudes toward financial literacy and inclusion in the PLS-SEM model. This finding aligns with previous research extending the theory of planned behavior to the context of financial inclusion [Musa et al. \(2025\)](#) and research on the determinants of financial literacy in high school students in Spain ([Ruiz-Palomo et al., 2023](#)).

The elaboration level variable only moderates the central route, not the peripheral route. This result aligns with ELM theory, as peripheral cues operate without requiring in-depth cognitive processing. Therefore, increasing the level of elaboration neither strengthens nor weakens the peripheral route's relationship with financial inclusion. In other words, when people begin to elaborate on information in depth, their decisions are no longer determined by aesthetics, frequency of delivery, or communication packaging, but rather by the quality of the arguments contained in the message. In addition to moderating the relation of the central route, the level of elaboration also moderates the association of extra-communication factors with financial inclusion. Petty, one of the inventors of the ELM, and his colleagues, in their recent paper, emphasized that the ELM is context-dependent, meaning findings from one context may differ in another (Siev et al., 2022).

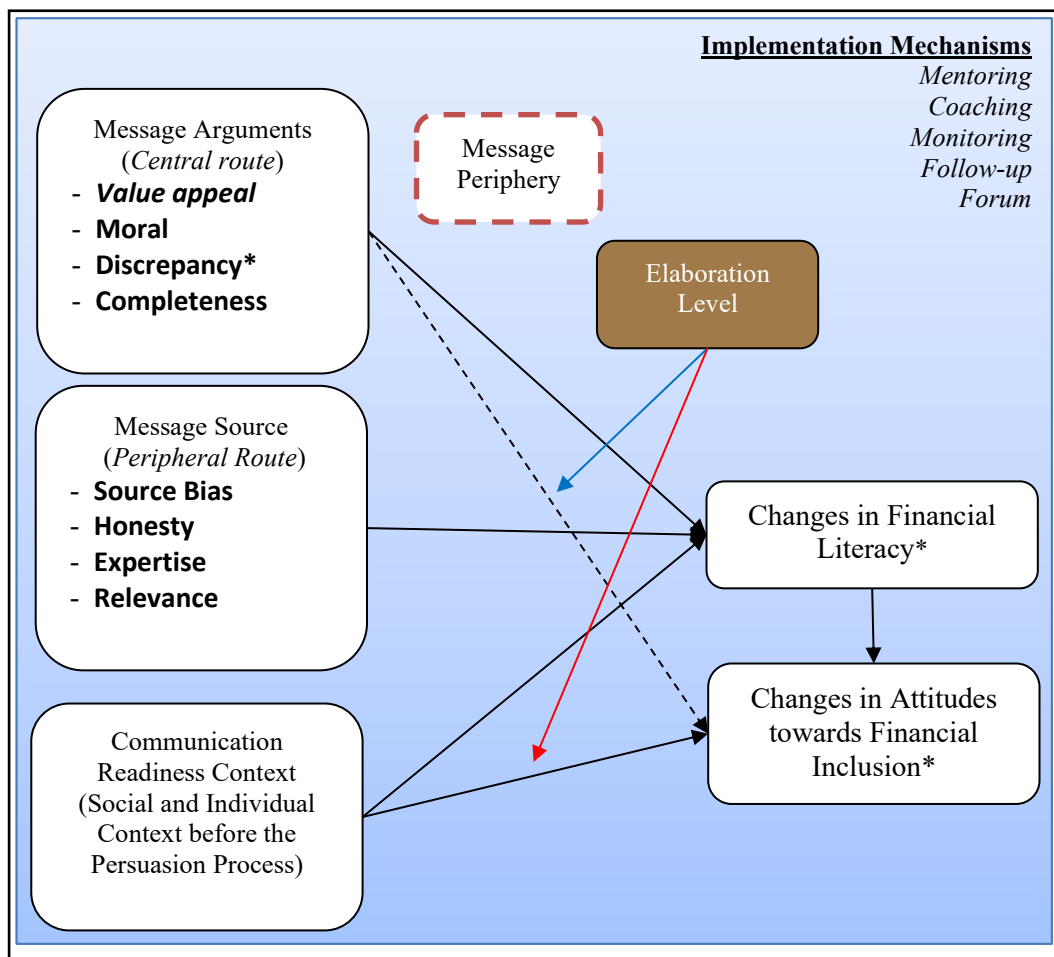
This study, conducted in the context of financial services, found that the message source variable was not moderated by the level of elaboration in influencing changes in attitudes toward financial inclusion. The ELM has indeed been used in financial decision-making studies, such as those by Greiner & Wang (2010), Han et al. (2018), Lin & Huang (2021), and Akter et al. (2026), which were conducted in digital transaction environments such as peer to peer (P2P) lending and equity crowdfunding. Unlike these studies, this study examines a government financial literacy program aimed at improving people's ability to critically evaluate financial information. In this context, people are not choosing between various online investment platforms rich in visual cues and digital reputations, but are learning how to avoid illegal loans, understand the legality of financial institutions, and manage businesses more safely in Fig. 3. Therefore, the quality of the argumentation becomes more dominant than the peripheral characteristics of the message.

The ELM-Based Rural Financial Literacy Model can be interpreted at three operational levels: persuasion processing, extra-communication factors, and implementation mechanisms. The first two levels are represented in the quantitative model, whereas mentoring, coaching, monitoring, follow-up, and forums emerged from the qualitative findings as implementation mechanisms.

Message arguments (central route) associated with changes in financial literacy and weakly associated with changes in attitudes toward financial inclusion, while message sources (peripheral route) only associated with changes in financial literacy. However, the model should not be interpreted as demonstrating that the central route is universally more powerful than the peripheral route. The present study does not statistically compare the magnitude of all central- and peripheral-route coefficients, and ELM itself does not imply that peripheral cues are inherently inassociationive. Rather, the findings suggest that, in this particular rural financial inclusion context, substantive financial information was more consistently associated with the development of financial literacy than were the peripheral communication characteristics measured in the study. The role of elaboration provides additional support for this interpretation. Elaboration level significantly moderated the relationship between message argument and financial inclusion. This suggests that the relationship between substantive message characteristics and inclusion varies according to the extent to which individuals engage cognitively with the information.

At the same time, elaboration did not significantly moderate the peripheral communication pathway. This pattern is broadly compatible with the logic of ELM because peripheral cues do not depend on extensive cognitive elaboration in the same manner as argument-based processing (Siev et al., 2022). The significant moderation of the extra-communication pathway further indicates that persuasion in financial inclusion cannot be understood exclusively as an interaction between a message and an individual recipient. The statistical model points to the importance of the

communication context surrounding the individual, while the qualitative findings identify mentoring, collaboration, accessibility, and follow-up as practical manifestations of that context. These findings suggest that the conditions surrounding communication may shape whether financial information can be translated into meaningful financial decisions.



Note: red arrow = negative significant relationship, dashed line = weakly significant association ( $p < 0.10$ )  
\* sign = new dimension from researcher

**Fig. 3. ELM-Based Rural Financial Literacy Model**

## Practical Implications

The findings have several implications for the design of rural financial inclusion communication. First, communication programs should prioritize substantive and actionable financial information. Messages should explain not only what financial services are available but also how individuals can assess legality, risks, costs, requirements, and suitability. The qualitative evidence suggests that educational materials, regulatory information, practical examples, and applied learning can support this objective. Second, financial inclusion communication should not be designed as a one-way campaign. The significant relationship between extra-communication factors and financial outcomes, together with the qualitative evidence on mentoring and collaboration, suggests the value of sustained communication environments. Financial institutions, regulators, universities, local governments, cooperatives, and community organizations can complement mass communication through mentoring, consultation, training, and follow-up.

Third, the role of peripheral communication should be interpreted carefully. Attractive presentation, frequency, and communication style may support attention and engagement, but they

should not substitute for substantive financial information when the objective is to develop financial literacy. Communication design should therefore treat aesthetic and peripheral elements as complementary rather than as replacements for argument quality.

Theoretically, the study extends the contextual application of the ELM by showing that persuasive processing in rural financial inclusion is embedded in a communication-readiness context involving social, informational, and economic conditions surrounding the persuasion process. The operational implications of the model presented in [Table 10](#).

**Table 10.** Operational implications of the ELM-based rural financial literacy model

| Model component             | Communication design                                                                    | Main actors                                           | Implementation mechanism                                      |
|-----------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------|
| Message arguments           | Use clear, actionable information on legality, risks, costs, requirements, and benefits | Banks, OJK, trained financial educators               | Case examples, demonstrations, applied learning               |
| Message source              | Use credible and financially knowledgeable communicators                                | Banks, OJK, universities, certified facilitators      | Face-to-face explanation, questions and answers, consultation |
| Extra-communication factors | Address prior knowledge, social support, accessibility, and economic readiness          | Local government, cooperatives, community leaders     | Needs assessment, simplified procedures, local facilitation   |
| Elaboration                 | Provide opportunities for participants to process and discuss information               | Facilitators, educators, community organizations      | Small-group discussion, consultation, problem solving         |
| Mentoring                   | Continue communication after initial campaign                                           | Banks, universities, cooperatives, local facilitators | Coaching, administrative assistance, monitoring               |
| Community involvement       | Create opportunities for peer learning and collective discussion                        | Community groups, MSMEs, village organizations        | Community forums, peer discussion, follow-up                  |

The study contextualizes ELM by showing that persuasion in rural financial inclusion does not operate solely through message processing. The effectiveness of message processing is embedded in a extra-communication factors consisting of social and individual conditions that precede and accompany persuasion. Conventional applications of ELM often emphasize the characteristics of the message, source, recipient, and processing route ([Lin & Huang, 2021](#); [Yang et al., 2021](#)). The present findings indicate that, in rural financial inclusion communication, persuasion is embedded in a broader extra-communication factors. Individuals encounter financial messages within social environments characterized by institutional support, mentoring, community participation, accessibility, and opportunities for continued interaction.

#### 4. Conclusion

This study examined how persuasive communication and contextual factors are statistically associated with financial literacy and financial inclusion among rural MSMEs. The quantitative results showed that message arguments, extra-communication factors, and message source were positively associated with financial literacy, while extra-communication factors and financial literacy were positively associated with financial inclusion. Message periphery was not statistically significant. The direct association between message argument and financial inclusion did not reach the conventional 5% significance level, whereas elaboration level significantly moderated the associations of message argument and extra-communication factors with financial inclusion. These findings indicate that substantive financial communication is more consistently associated with financial literacy than with direct inclusion outcomes.

The qualitative findings provide contextual explanations for these statistical patterns. Financial inclusion programs examined in the study emphasized substantive financial information, including legality, financial risks, business management, investment, and access to formal financing. They also involved mentoring, institutional collaboration, facilitators, and follow-up activities. These findings suggest that financial communication in rural settings operates within a broader social and organizational environment rather than through isolated campaign messages.

This study has several limitations. Its cross-sectional design limits causal inference and the assessment of sustained behavioral change. Future longitudinal studies should examine whether changes in financial literacy persist and subsequently translate into changes in financial-service use. Future research should also test the model in other rural regions and comparative socio-cultural settings and examine additional contextual variables that may influence financial persuasion and inclusion.

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|                             |                                                                                                                                                                         |
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