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QRIS Impactfull: How to Develop Traditional Market Financial?

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Abstract: Traditional markets face various environmental challenges that ultimately affect their performance practices; this study aims to analyse digital literature on digital transactions with local knowledge as moderation. Sampling technique: This research was conducted in traditional markets in the Sidoarjo district and involved 263 respondents, including shop owners. Data analysis using quantitative methods, such as SmartPLS 4.0 software, was used to test the research hypothesis. Digital literacy significantly influences the adoption of digital transactions in traditional markets, such as QRIS. Good digital literacy and skills increase the likelihood of merchants adopting the technology significantly when moderated by local knowledge that reinforces the application of technology according to local culture and economic practices. Financial education also encourages digital transactions; merchants who understand financial management are more likely to switch to digital payment systems. Local knowledge strengthens the influence of financial education by tailoring technology to market needs. This study highlights the importance of digital literacy, financial education and the local socio-cultural context in modernising traditional markets in Sidoarjo.

Keyword: Digital Literacy, Financial Education, Local Knowledge, Digital Transactions, Traditional Markets

INTRODUCTION

Quick Response Code Indonesian Standard (QRIS) is an interesting technological innovation because it can integrate various digital payment platforms into one QR code standard (Yuwana et al., 2024), making it easier for people to make cashless transactions (Ramya et al., 2017). QRIS is essential because it is expected to encourage financial inclusion (Pattynama et al., 2024), which means opening access to financial transactions for all levels of society, including those in remote areas or traditional markets (van Zanden, 2023). Research on QRIS is relevant because it can measure how much this technology increases access to financial services and how it impacts people's transaction behaviour, especially in the increasingly developing digital era (Chohan et al., 2022). Understanding the effectiveness of

QRIS in achieving financial inclusion goals can provide insight into future financial policies and technologies (Gozman et al., 2018). UnaFinancial, a Singapore-based *fintech solution provider*, estimates that Indonesia's number of *Quick Response* (QR) payment application users will grow by 54% by 2025. Indonesia will become the country with the most significant number of QR code users in Southeast Asia (Laras, 2023). Data from the Indonesian Market Traders Association (APPSI) shows that the use of digital payments in the form of QRIS in the regions has only reached 5% (Kurniawan, 2024).

Research conducted on digital transactions in the context of QRIS (Wirabuana et al., 2024). Traditional markets underline the importance of integrating modern payment technologies in increasing financial access. (Wirabuana et al., 2024). This focus evaluates its effectiveness in facilitating transactions and increasing payment efficiency (Latilo et al., 2024). By understanding the factors that hinder the use of QRIS, such as limited digital literacy and preference for cash, this study can inform strategies to increase the acceptance of digital payment technology (Shehadeh et al., 2024). So far, the use of *digital transactions* has not been widely carried out in traditional markets (Pujianto & Rodiyah, 2019), hindering innovation and further integration of digital payment systems (Putrevu & Mertzanis, 2024). As a result, opportunities to increase economic growth and market efficiency will be limited, impacting small business actors and communities in remote areas who will continue to be isolated from the benefits of the digital economy (Townsend et al., 2013).

The previous phenomenon still needs comprehensive and practical improvements and strategies to overcome the challenges faced by new QRIS users. Based on the theory of *social exchange* or *Social Exchange Theory* by Blau (1964), it is revealed that social relationships are formed through the exchange of rewards (Rohmah et al., 2024), sacrifices, and benefits that benefit both parties (Blau, 1964). According to the *Social Exchange Theory*, digital transactions involve reciprocity-based social and economic relationships (Alfafa & Anshori, 2023). Digital platform users, for example, will choose services that are perceived to provide maximum benefits, such as convenience, speed, or competitive prices (Mani & Chouk, 2018). This theory also emphasises the importance of trust and commitment in building long-term relationships between users and digital service providers (Maria et al., 2024). If users feel that their digital transaction experience is consistent and provides added value, they are likelier to continue the interaction and even recommend the service to others (Fahrurrozi, 2023). Increasing QRIS adoption requires a strategy such as intensive education, providing incentives, and improving technological infrastructure to create a cost-benefit balance that benefits all stakeholders (Westmore & Leandro, 2023).

This study analyses individual market traders related to *digital transactions* using QRIS in Traditional Markets to answer the research questions. First, this study develops hypotheses based on relevant concepts from previous research and contextualises them using QRIS in traditional markets (Amruddin, 2022). Second, the study compiles a questionnaire from relevant previous research and adjusts its variables and indicators (Groves et al., 2011). Third, this study distributes questionnaires to market traders who use QRIS in traditional markets (Azeez & Akhtar, 2021). Fourth, the analysis technique uses PLS 4 statistical software (JF Hair et al., 2019). Finally, this study provides a discussion related to existing research, theoretical contributions, managerial implications and limitations of the study, and future research directions (Munthaha et al., 2024).

This study makes important contributions. First, this study contributes to the theoretical concept of *Social Exchange Theory* (SET) by considering the role of traditional market traders (Silalahi & Zhafarina, 2024). Second, this study also broadens insights into the dynamics of digital payment transactions in traditional market environments (Gao & Waechter, 2017); this is focused on the study of *digital literacy* (Alfiana et al., 2023), *financial education* (Aurelia, 2022), *local knowledge* (Basmantra & Liman, 2022), and *digital transactions* (Chohan et al.,

2022) which was previously under-explored in similar studies. Furthermore, this study addresses the shortcomings in existing empirical studies on digital transactions, especially QRIS in traditional markets in Asian countries (Listiyono et al., 2024) such as Malaysia (Fadhil et al., 2024), Thailand (Maharani, 2023), Philippines (Fernando & Turnip, 2023), Singapore (Fernando, 2023) which shows minimal research in this area. Malaysia, Thailand, the Philippines, and Singapore are finalising and implementing QRIS transactions (Rizqiah & Suwito, 2024). Considering Indonesia's large population and high prevalence of non-digital transactions, adopting digital transactions is critical in supporting and accelerating national economic development. Hence, this research must be carried out to support this mission's creation.

METHODOLOGY

Data were collected from several traditional market units in Sidoarjo, especially traders who have QRIS payment transaction tools. The study began in October 2024 to January 2025. In the first stage, the researcher sent a letter to the Head of the Industry and Trade Service (Disperindag). In addition, the researcher sent a letter to the head of the UPT market or the local market manager. In the second stage, the researcher prepared a draft questionnaire *readable* by management expert lecturers, methodology lecturers, and heads of Market UPT or Market Managers. As explained by Taherdoost (2022), *Readable* ensures that the questionnaire statements presented are clear, simple, and understandable to respondents so that they can provide accurate and relevant answers. Given that the population size is unknown, the minimum sample size in this study refers to the opinion of (JF Hair et al., 2018), where the minimum research sample is ten times the number of indicators. The minimum sample size in this study is $10 \times 21 = 210$. Respondents in this study were taken from 20 traditional markets in Sidoarjo, with a total distribution of 263 questionnaires.

Table 1. The population of 20 Markets in Sidoarjo Regency

No	Market Name	Subdistrict	Number of Respondents
1	Puspa Agro Main Market	Taman	15
2	Main Market Prohibition Sidoarjo	Candi	16
3	Porong Market Center	Porong	21
4	Sukodono Traditional Market	Sukodono	23
5	Gedangan Market	Sidoarjo	15
6	Suko Market	Sidoarjo	14
7	Tulangan Market	Tulangan	19
8	Waru Market	Waru	12
9	Porong Market	Porong	11
10	Krian Market	Krian	14
11	New Market Krian	Krian	10
12	Pekauman Market	Sidoarjo	17
13	Sidoarjo Art Market	Sidoarjo	5
14	Prambon Market	Prambon	10
15	Sawotratap Market	Gedangan	8
16	Tourism Market Tanggulangin	Tanggulangin	14
17	Ornamental Fish Market Sidoarjo	Sidoarjo	8
18	Rizal Market Prosperity	Jabon	10
19	Flea market Sidoarjo	Taman	21
Total			263

RESULT AND DISCUSSION

The analysis of algorithm model data using the PLS 4 statistical software can be utilized to evaluate validity and reliability. An indicator is considered valid or acceptable if its value exceeds 0.7; however, in the research scale development phase, a loading value above

0.6 is still regarded as highly valid. This evaluation is also known as the Outer Model assessment, which defines the relationship between estimated indicators or parameters and latent variables. The Outer Model is assessed based on three key criteria: convergent validity, discriminant validity, and composite reliability or Cronbach's alpha.

Indicators are considered to meet the criteria for convergent validity if they achieve an outer loading value greater than 0.7. However, values ranging from 0.5 to 0.6 are still deemed acceptable. The outer loading values for each indicator in this research variable are presented below. Table 2 illustrates that each reflective construct has a loading value exceeding 0.7 for the overall loading value. Thus, the model is confirmed to have fulfilled the requirements for good convergent validity.

Average Variance Extracted (AVE) is used to assess the discriminant validity of each construct and latent variable. Discriminant validity is determined by comparing the square root of the AVE value for each model variable. A model is considered satisfactory if the AVE value is greater than the correlation with other constructs. In this study, a variable is deemed acceptable if its AVE value is at least 0.5 (JF Hair et al., 2018).

Table 2 indicates that the variables of digital literacy, financial education, digital transactions, and local knowledge have AVE values exceeding 0.5, allowing the model to proceed to further testing. Additionally, composite reliability is measured to determine the reliability of the measurement instrument. A variable in a model is considered reliable if its composite reliability value exceeds 0.60. As shown in Table 2, digital literacy, financial education, digital transactions, and local knowledge all achieve composite reliability values above 0.60, confirming their reliability.

Cronbach's Alpha is a measure used to assess the reliability of indicators within a construct. A construct is considered reliable or meets the Cronbach's Alpha criteria if its value exceeds 0.7 (J. Hair & Alamer, 2022). As presented in Table 2, the Cronbach's Alpha values for each construct are as follows: digital literacy at 0.866, financial education at 0.886, digital transactions at 0.774, and local knowledge at 0.841. Based on these results, all constructs demonstrate reliability.

Table 2. Research Items Factor Loadings, Composite Reliability, AVE

Item Measurement	Factor Loading	Reliability	AVE
<i>Digital Literacy</i>		0.869	0.714
I can operate the QRIS digital payment application when making transactions	0.873		
I follow the privacy policy and terms of use of the QRIS service on the digital payment application.	0.873		
I use dual authentication such as a PIN, unique password, or fingerprint scan.	0.822		
finger/face on digital payment applications to prevent unauthorised access			
I use QRIS because all merchants use it	0.810		
<i>Financial Education</i>		0.889	0.639
I know how to use QRIS as a transaction tool.	0.704		
I know the usefulness of QRIS based on the information provided during the briefing.	0.797		
I use QRIS because there are instructions from the city government.	0.837		
I use QRIS because of advice from other traders	0.823		
I use QRIS to develop skills in trading	0.818		
I believe using QRIS is more convenient and safer	0.809		

<i>Digital Transaction</i>	0.836	0.545
I feel all payment transactions are more practical with QRIS	0.803	
I feel that QRIS offers convenience in helping consumers make transactions.	0.853	
I have felt safe using QRIS from the beginning until now.	0.813	
I use QRIS because of the advertisements on television and other media that explain the benefits.	0.768	
<i>Local Knowledge</i>	0.844	0.611
I can remember when I was advised to register for QRIS again.	0.799	
I feel I understand how to operate the use of QRIS as a whole	0.755	
I can apply QRIS after gaining knowledge during socialisation.	0.773	
I can recommend QRIS to others	0.793	
I can direct my friends if they experience problems in applying QRIS	0.788	

After the outer model test was conducted by considering convergent validity, discriminant validity, and composite reliability or Cronbach alpha, it showed that the data used was valid and reliable, meaning that further testing could be carried out. The aim is to test the hypothesis that has been explained previously.

Hypothesis testing in this research is done by observing the T-statistic value obtained from the bootstrapping results, which are then calculated with the degree of freedom results, producing the P- P-value (significant value). The original sample value is used to see the direction of the hypothesis test; if the original sample shows a positive value, the direction is positive, and if the original sample value is negative, the direction is unfavourable. The following are the results of the hypothesis test.

Table 3. Results of Path Coefficients Hypothesis Test

	Estimate	P Values
DL -> DT	0,315	0,000
FE -> DT	0,284	0,000
LK x EF -> DT	-0,014	0,789
LK x DL -> DT	0,125	0,038

The results of the hypothesis test above, digital literacy affects digital transactions; this can be seen in the p values, which are $0.000 < 0.05$ so that H_0 is rejected and H_a is accepted. This means that the better the digital literacy, the more it can influence a digital transaction maximally. So, the first hypothesis of this study, which states that digital literacy has a significant effect on digital transactions, is fulfilled and proven genuine. The path coefficients' results show that a positive value means the direction is positive.

The results of the hypothesis test above, financial education affects digital transactions; this can be seen in the p values, which are $0.000 < 0.05$ so that H_0 is rejected and H_a is accepted. This means that the better the financial education, the more it can influence a digital transaction maximally. So, the second hypothesis of this study, which states that financial education has a significant effect on digital transactions, is fulfilled and proven genuine. The path coefficients' results show that a positive value means the direction is positive.

The results of the hypothesis test above, digital literacy affects digital transactions moderated by local knowledge; this can be seen in the p values, which are $0.038 < 0.05$ so that H_0 is rejected and H_a is accepted. This means that digital literacy affects digital transactions strengthened by local knowledge. Local knowledge supports digital technology, so digital literacy will further increase the adoption of digital transactions. So, the third hypothesis of

this study, which states that digital literacy affects digital transactions moderated by local knowledge, has been fulfilled and proven genuine. The path coefficients' results show that a positive value means the direction is positive.

The results of the hypothesis test above, financial education affects digital transactions moderated by local knowledge; this can be seen in the p values, which are $0.789 < 0.05$ so that H_0 is accepted and H_a is rejected. This means that financial education affects digital transactions weakened by local knowledge. Local knowledge weakens the use of digital technology. Even though someone understands financial management and digital transactions well, the urge to switch to digital transactions will weaken if the surrounding environment still believes more in cash transactions or has limited digital infrastructure. So, the fourth hypothesis of this study, which states that financial education affects digital transactions moderated by local knowledge, is not fulfilled and has not been proven true. The results of the path coefficients show that a negative value means the direction is unfavourable.

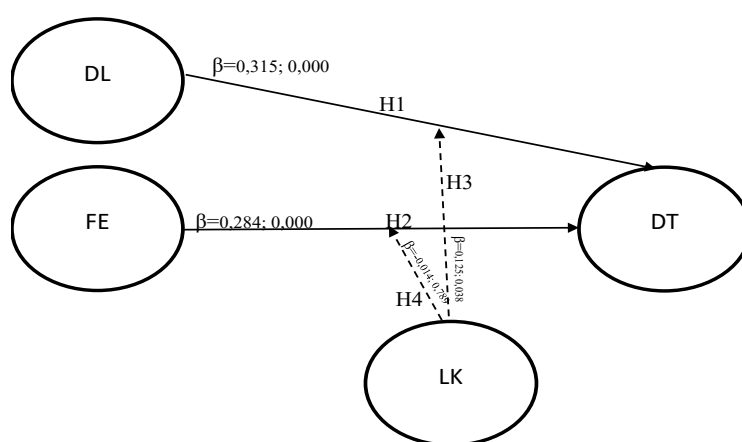


Figure 1. Model Analysis Results

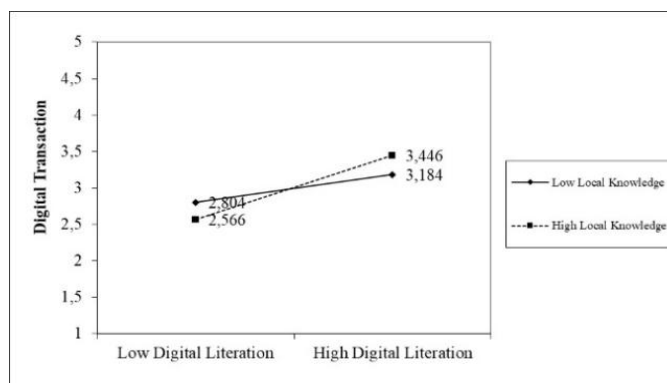


Figure 2 Results of LK Moderation Variables through DL against DT

Figure 2 shows that when LK is low, then low DL will have low DT ($X = 2.804$), but when DL is high, DT will be high ($X = 3.184$). Conversely, when LK is high, low DL has low DT ($X = 2.566$), while high DL has high DT ($X = 3.446$).

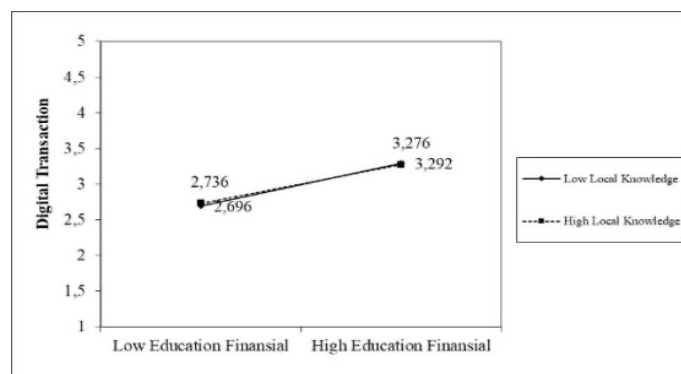


Figure 3 Results of LK Moderation Variables through FE on DT

Figure 3 shows that when LK is low, low FE has high DT ($X = 2.696$), but when FE is high, it has low DT ($X = 3.276$). Conversely, when LK is high, low FE will have low DT ($X = 2.736$), while high FE has high DT ($X = 3.292$).

This study analyzes digital literacy, financial education, digital transactions in traditional market traders and local knowledge as moderators. This study is also based on the SET (Social Exchange Theory) theory where this theory provides insight into the dynamics of digital payment transactions in traditional market environments (Gao & Waechter, 2017). The use of this theory in this research study is to see the theoretical side of this study, where this study analyzes the context of transactions as a form of exchange involving social and economic relations.

Based on the results of the research that has been conducted, it shows that digital literacy has an effect on digital transactions. According to Maulana (2022), there is a significant positive influence between financial literacy, digital literacy on the adoption of BRIVA in market traders. Meanwhile, Sulistianingsih et al. (2021) found a significant relationship between digital literacy among the Padang community. Digital literacy is an important factor in shaping individual decisions to participate in digital transactions. This is also in line with the results of research on digital literacy which has an effect on digital transactions which are moderated by local knowledge, producing a positive influence strengthened by local knowledge. According to Alfarizi et al. (2023) local knowledge as a moderation strengthens the connection between digital literacy and digital transactions by ensuring that technology and financial education are delivered in a way that is appropriate to the social and cultural context. Local knowledge can be implemented by traders, where when traders have received socialization about the use of QRIS, they are allowed to continue using it (Shabira, 2025). In addition, other traders are allowed to recommend other traders to also use it (Aprianti, 2021). If there are obstacles, traders can help each other to share knowledge about QRIS operations (Mulya, 2024). in line with the principle of Social Exchange Theory which emphasizes rational evaluation of the advantages and disadvantages in social and economic interactions (Silvana, 2024). The implementation that has been carried out by traditional market traders in Sidoarjo is able to operate the QRIS digital payment application when making transactions. This was done because of an appeal from the local government to follow the privacy policy and terms of use of the QRIS service. In addition, because almost all traders use it, other traders also use QRIS.

Based on the results of the study, it shows that financial education has an effect on digital transactions. According to Marginingsih et al. (2019) financial education provides a deep understanding of personal financial management, including the use of technology in financial transactions. On the other hand, digital transactions also strengthen financial education by providing practical experience in managing money digitally (Mukhra et al., 2024). Based on existing research, Siregar et al. (2024) concluded that user understanding of

QRIS increases the effectiveness of digital transactions. However, the results of the study show that financial education has an effect on digital transactions which is weakened by local knowledge. Financial education provides a basis for wise financial management, including the benefits of efficiency and security of digital transactions (Ayustia et al., 2023). However, the success of implementing digital transactions also depends on local knowledge, which includes an understanding of the culture, habits, and values of the local community (Hidayat et al., 2022). Even though someone understands finance and digital transactions, if the people around them prefer cash or digital access is still limited, the desire to switch to digital transactions will decrease. Social Exchange Theory highlights the importance of social interaction in influencing merchant decision making. In this case, financial education provided collectively, such as through trader group training, can create trust and a sense of mutual support (Almas, 2023). The implementation felt by traders in using QRIS is that traders are more comfortable and safe in transacting with consumers.

CONCLUSIONS

Based on the existing research results, digital literacy significantly influences digital transactions. In addition, the influence of digital literacy on digital transactions is more substantial when moderated by *local knowledge*. Likewise, *financial education* has been proven to affect digital transactions. However, the influence of *financial education* on digital transactions is weaker when moderated by *local knowledge*. This study has several limitations; first, it only explores *digital literacy*, *financial education*, *digital transactions* and *local knowledge* as its moderation. Second, this study is limited to *digital literacy* and *financial education* variables. Based on existing research results, researchers can provide suggestions for further research by adding new variables regarding public trust in the digital banking system, cash transaction habits, or local regulations that influence the adoption of digital transactions.

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