

The Role of Digital Literacy, Creativity and Innovation in Increasing Business Group Productivity, Increasing Family Income-Empowerment and Welfare of Tornado Families, Jambi City

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ABSTRACT

This study examines the role of digital literacy, creativity, and innovation in the productivity of MSME traders who are members of the UP2K-PKK Beliung Group in Jambi City. Using a quantitative design and a saturated sample of 36 respondents, the study applied partial least squares structural equation modelling (PLS-SEM) with SmartPLS 3.0. The reported structural model shows positive path coefficients from digital literacy ($\beta = 0.976$), creativity ($\beta = 1.272$), and innovation ($\beta = 0.704$) to productivity, while the model explains 99.7% of the variance in productivity ($R^2 = 0.997$). Because the reported results do not provide bootstrapped t-statistics, confidence intervals, or p-values, statistical significance cannot be independently verified from the presented output. The findings nevertheless indicate that digital capability, creativity, and innovation are closely associated with productivity within this business group. The study offers practical implications for MSME capacity building and recommends broader samples and more complete measurement- and structural-model reporting in future research.

Keywords: *Digital Literacy, Creativity, Innovation, Productivity*

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1.0 INTRODUCTION

In today's digital era, the ability to access, understand, and utilize information technology is one of the main factors in increasing the competitiveness of individuals and groups. Digital literacy is not only an additional skill, but also an essential need that determines the effectiveness of people's economic, social, and cultural activities (Hague & Payton, 2010). Small business groups, especially those based on family empowerment such as the Family Income Enhancement Business Group – Family Empowerment and Welfare (UP2K-PKK), need adequate digital understanding to face the challenges of the times. In Jambi City, especially in Beliung Village, the UP2K-PKK Beliung group shows promising economic potential but still faces obstacles related to digital literacy. Many members of the group still rely on conventional methods of business management, marketing, and financial recording. This leads to limitations in reaching a wider market, accessing new resources, and keeping up with modern consumer trends. Low digital capabilities also lead to a lack of documentation of business activities that could serve as material for evaluation and improvement. In fact, with the right use of technology, this kind of business group can develop faster and more sustainably. Therefore, it is important to examine the extent to which digital literacy has been applied within this group and its impact on business productivity (Hamijaya et al., 2024).

In addition to digital literacy, creativity is one of the elements that cannot be ignored in the development of community businesses. Creativity allows business actors to create added value, develop unique marketing strategies, and present products that are attractive and different from competitors (Munandar, 2014). In the context of the UP2K-PKK Beliung group, creativity can be the main key in forming a strong local product identity. Unfortunately, the development of creativity among family business groups is often limited due to limited insights, access to information, and lack of ongoing training. Many of the products produced do not have uniqueness, both in terms of packaging, branding, and product innovation. Less than optimal creativity also has an impact on the difficulty in building customer loyalty and penetrating a wider market. In fact, in the creative economy ecosystem, the ability to think out-of-the-box and develop a business strategy based on local potential is very decisive for long-term success. Therefore, increasing the creativity of group members needs to be integrated in every business development process. This requires the right approach, intensive coaching, and the creation of collaborative spaces that encourage the exploration of new ideas.

Innovation is a strategic follow-up factor in supporting the sustainability and growth of business groups. Without innovation, small businesses will find it difficult to survive amid increasingly competitive competition and rapidly changing market tastes. Innovation is not only limited to products, but also concerns the production process, distribution, to managerial strategies and consumer service (Irwan et al., 2023). For the UP2K-PKK Beliung group, it is important to understand that innovation does not only belong to large companies, but is also very relevant to family businesses and local communities. With limited capital and resources, this group is required to be more creative and innovative in finding solutions to various business obstacles. Simple innovations such as product diversification, the use of local raw materials, and the use of social media as a means of promotion can have a significant impact on increasing productivity. However, the low awareness and knowledge of group members about the importance of innovation is often a major obstacle. Therefore, coaching and education on the implementation of innovation must be an integral part of the empowerment strategy.

The Family Income Improvement Business Group-Family Empowerment and Welfare (UP2K-PKK) is one of the programs initiated to improve the welfare of the community, especially women and families. Through this program, it is hoped that every family can actively participate in productive economic activities to increase household income. In Beliung Village, the UP2K group has been running in recent years with various types of businesses such as culinary, handicrafts, and home services. However, the results achieved have not been maximized because most of them are still on a micro scale with limited reach. Some groups have not been able to access ongoing training and mentoring relevant to their needs. Therefore, revitalizing the role of UP2K is very important through a more adaptive approach to the digital era and based on the development of its human resource capacity. The three factors of digital literacy, creativity, and innovation are believed to be important foundations to realize a sustainable transformation of group productivity.

In the context of community empowerment, the role of digital literacy, creativity, and innovation cannot stand alone. The three are interrelated and must be developed simultaneously in order to be able to drive significant change. Good digital literacy will support the creative process in seeking new information and inspiration (Hamijaya et al., 2024), while high creativity will give birth to innovations that are relevant to market needs. Therefore, the synergy between these three aspects must be the basis for the preparation of business group coaching and assistance programs. Local governments, training institutions, and other development partners need to work together to create an ecosystem conducive to the growth of local business groups. This is also in line with efforts to realize the vision of inclusive and competitive community independence-based development. Without support from various parties, the development of digital literacy, creativity, and innovation will be difficult to realize optimally.

The productivity of business groups such as UP2K is highly dependent on the effectiveness of management and the active role of its members in the decision-making process and implementation of activities. In this case, continuous training and coaching is an absolute necessity. Digital literacy can be used to speed up the learning process through online platforms, video tutorials, or financial and marketing applications. On the other hand, creativity and innovation can be honed through discussion forums, workshops, and comparative studies to other successful business groups. Thus, increasing productivity does not only rely on physical capital, but also investment in human capacity development. This capacity building must continue to be carried out systematically and planned so that the UP2K-PKK Beliung group not only survives, but also develops rapidly in the future.

Research on the relationship between digital literacy, creativity, innovation, and business group productivity is important to provide an empirical basis in the formulation of empowerment policies and programs. By understanding how these three variables affect each other, the interventions carried out will be more targeted and have a real impact. The data obtained will also help identify the strengths and weaknesses of the UP2K group, so that interventions can be contextually adjusted. In this case, a participatory and data-driven approach is needed so that development strategies are truly in line with local needs and potential. The UP2K-PKK Beliung group in Jambi City is a concrete example of how the local community can be used as a social laboratory to develop an adaptive and innovative economic empowerment model.

Jambi City as one of the regions that is actively encouraging the development of MSMEs and women's empowerment has a great opportunity to make the UP2K group an agent of socio-economic change. However, it is necessary to realize that without strengthening digital literacy, developing creativity, and encouraging innovation, these efforts will only have minimal impact. The success of empowerment must be measured by directly improving the welfare of group members, both in the form of income, market access, and product quality. Therefore, intervention strategies should not only focus on technical training, but also on building a work culture that is creative, innovative, and technologically literate.

By integrating digital literacy, creativity, and innovation into every stage of business group development, it will create a group that is adaptive and resilient to the changing times. The UP2K-PKK Beliung group can be a model for other regions in utilizing local potential for family economic development. The implementation of simple technologies such as social media, local e-commerce, and digital cash applications can provide great benefits if supported by product creativity and marketing innovation. Therefore, synergy between group members, the government, and the private sector is needed to support this capacity strengthening.

Based on the description above, it can be concluded that digital literacy, creativity, and innovation have an important role in increasing the productivity of the UP2K-PKK Beliung group in Jambi City. This research is expected to provide a comprehensive overview of how these three aspects contribute to the growth of community-based family businesses. In addition, the results of this study are also expected to be recommendations for local governments and other stakeholders in formulating more effective and sustainable family economic empowerment strategies. Thus, the existence of the UP2K group is not only a symbol of government programs, but also a real family economic driver and has a wide impact on the community.

2.0 LITERATURE REVIEW

Digital Literacy

Hague and Payton (2010) describe digital literacy as the skills, knowledge, and understanding required to use digital technologies critically, creatively, and effectively. In this study, digital literacy is represented through functional skills, creativity, collaboration, communication, the ability to find and select information, critical thinking and evaluation, cultural and social understanding, and e-safety.

Creativity

According to Munandar (2014), creativity refers to the ability to generate ideas that are original and useful in solving problems or achieving particular goals. In this study, creativity is measured through fluency of thinking, flexibility, and elaboration.

Innovation

Innovation refers to the implementation of new or improved ideas, practices, methods, or products that support performance and problem solving. In this study, innovation is operationalised through dimensions relating to structure,

culture, and resources. The broader SME literature similarly links creativity and innovation processes with performance-related outcomes (Castillo-Vergara & García-Pérez-de-Lema, 2021).

Productivity

According to Yusuf (2015), productivity reflects the relationship between work outputs and the resources used to produce them. In this study, productivity is assessed through knowledge, skills, abilities, and attitudes.

3.0 METHODOLOGY

Research Object and Research Subject

The research objects in this study are digital literacy, creativity, innovation, and productivity. The research subjects are MSME traders who are members of the UP2K-PKK Beliung Group in Jambi City.

Research Methods and Approaches

This study used descriptive and verification approaches within a quantitative research design. Sugiyono (2023) describes verification research as an approach used to test hypotheses through statistical analysis so that the proposed relationships can be evaluated empirically.

Population and Sample

The population comprised members of the UP2K-PKK Beliung Group in Jambi City. Because the population was limited, the study used a saturated-sampling approach in which all 36 members were included as respondents (Sugiyono, 2023).

Data Analysis Techniques

The study used quantitative data analysis with partial least squares structural equation modelling (PLS-SEM) in SmartPLS 3.0 to examine the direct relationships of digital literacy, creativity, and innovation with productivity. PLS-SEM can be applied to latent-variable models with relatively small samples and is less restrictive regarding multivariate normality than covariance-based SEM (Ghozali & Latan, 2015; Hair et al., 2022). The measurement model was assessed using reported indicator loadings and composite reliability, while the structural model was evaluated using R^2 and the reported path coefficients. The available results do not report average variance extracted (AVE), discriminant validity, collinearity diagnostics, or bootstrapped t-statistics, confidence intervals, and p-values; therefore, these aspects cannot be independently evaluated from the presented tables.

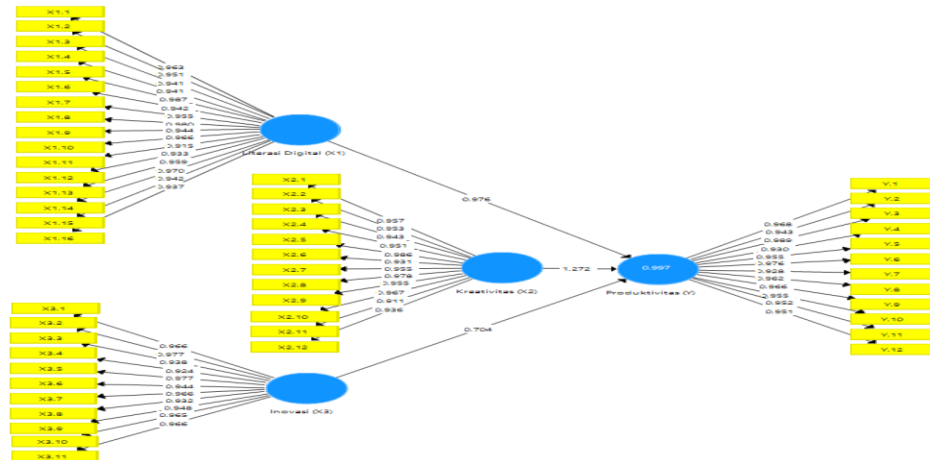
4.0 FINDINGS AND DISCUSSION

Convergent Validity Testing

Convergent validity assesses the extent to which indicators intended to measure the same construct share a high proportion of variance. In reflective PLS-SEM models, outer loadings and average variance extracted (AVE) are commonly examined for this purpose (Hair et al., 2022).

Loading Factor

An outer loading indicates how strongly an observed indicator represents its latent construct. Loadings around 0.70 or above are generally desirable because they indicate that the construct explains a substantial proportion of the indicator variance (Hair et al., 2022). Figure 1 presents the reported measurement model.



Information:

X1 = Digital Literacy
X2 = Creativity
X3 = Innovation
Y = Productivity

Figure 1. Calculation Results of the Initial Research Model

Figure 1 shows that the reported indicators have outer loading values above 0.70, supporting indicator reliability. However, AVE values are not reported in the available results; therefore, convergent validity cannot be fully evaluated from the information presented.

Reliability Test

Composite reliability assesses the internal consistency of the indicators used to measure a construct. Values above 0.70 are generally considered acceptable, while values substantially above 0.95 may indicate that some indicators are highly similar or redundant (Hair et al., 2022). Table 1 presents the composite reliability values for the four constructs.

Table 1
Composite Reliability

Variable	Composite Reliability
Digital Literacy (X1)	0.994
Creativity (X2)	0.991
Innovation (X3)	0.991
Productivity (Y)	0.992

Source: Data Processing with PLS, 2025

As shown in Table 1, all constructs exceed the conventional minimum reliability threshold of 0.70. However, the values are extremely high (0.991–0.994) and should be interpreted cautiously because very high composite reliability can indicate substantial overlap among measurement items (Hair et al., 2022).

Inner Model Evaluation

The structural model evaluation focused on the coefficient of determination (R^2) and the reported path coefficients. Although the manuscript refers to bootstrapping, the presented results do not report t-statistics, confidence intervals, or p-values. Accordingly, the available tables support interpretation of the direction and magnitude of the reported relationships but do not allow independent verification of statistical significance.

Coefficient of Determination R Square

In PLS-SEM, R^2 indicates the proportion of variance in an endogenous construct that is explained by its predictor constructs. Table 2 presents the reported R^2 value for productivity.

Table 2
R-Square Value

Variable	R-Square
Productivity (Y)	0.997

Source: Data Processing with PLS, 2025

Table 2 reports an R^2 value of 0.997 for Productivity (Y), indicating that the model explains 99.7% of the in-sample variance in productivity. This is an exceptionally high level of explanatory power. Given the small sample and the high correlations that may exist among the predictors, collinearity diagnostics such as the variance inflation factor (VIF) would be important for assessing model stability, but these statistics are not reported in the available results.

Hypothesis Testing

Table 3 presents the reported structural path coefficients linking digital literacy, creativity, and innovation with productivity. In PLS-SEM, statistical significance is normally evaluated using bootstrapped t-statistics, p-values, or confidence intervals. Because those statistics are not presented here, Table 3 should be interpreted primarily in terms of the direction and relative magnitude of the reported coefficients.

Table 3
Structural Model Path Coefficients

Variable	Path Coefficient
Digital Literacy (X1) -> Productivity (Y)	0.976
Creativity (X2) -> Productivity (Y)	1.272
Innovation (X3) -> Productivity (Y)	0.704

Source: Data Processing with PLS, 2025

Table 3 reports positive path coefficients from Digital Literacy (X1) to Productivity (Y) ($\beta = 0.976$), Creativity (X2) to Productivity (Y) ($\beta = 1.272$), and Innovation (X3) to Productivity (Y) ($\beta = 0.704$). Creativity has the largest reported coefficient. However, a path coefficient above 1.0 can occur when predictors are highly correlated or when suppression effects are present; therefore, the coefficient of 1.272 should be interpreted cautiously and should not be treated as a percentage change. Because VIF and bootstrapping statistics are not reported, the relative strength and statistical significance of these paths should not be overstated.

The Influence of Digital Literacy on Productivity

The reported path coefficient between digital literacy and productivity is positive ($\beta = 0.976$). This finding is broadly consistent with Hamijaya et al. (2024), who reported that digital literacy was directly associated with business performance among micro and small industries. In the present context, digital literacy may support productivity by helping respondents use digital devices for financial transactions, access digital financial services, create promotional content, obtain business information, and communicate or collaborate through digital platforms.

The influence of digital literacy on productivity can be explained through its ability to facilitate technological advancements used in various business aspects. SMEs with strong digital literacy can leverage digital technology to enhance their operational efficiency, particularly in financial transactions, marketing, and inventory management. By using digital financial applications, such as mobile banking or e-wallets, they can manage cash flow more easily and efficiently. This undoubtedly contributes to increased business productivity, as merchants can save time that was previously spent on manual processes. Additionally, digital literacy enables merchants to reach a broader market through online marketing platforms, such as social media or e-commerce. Those who understand how to create engaging and effective digital promotional content can attract more customers, both locally and internationally. Digital marketing not only enhances product visibility but also allows merchants to interact directly with customers, receive feedback, and tailor their products to market needs. Thus, the ability to effectively utilize digital media can drive sales and productivity improvements.

Moreover, the ability to access relevant information about market trends and the latest business techniques online provides an additional advantage. Merchants with high digital literacy can quickly obtain information on product developments, business strategies, and financial data that can enhance their business decisions. For instance, they can easily

compare available financial services and products, evaluate the security and benefits offered, and select the best options for their business. Faster and more accurate decision-making will promote greater efficiency and productivity. In a social context, digital literacy also helps merchants collaborate with other business actors within a digital network. In online groups or communities, merchants can share knowledge, experiences, and business strategies with fellow SMEs, thereby expanding their networks and business opportunities. This collaboration among business actors paves the way for greater synergy, allowing them to collectively support each other in boosting productivity. Therefore, digital literacy is a key factor in creating new opportunities that can enhance productivity and competitiveness in business.

Overall, digital literacy plays an important role in increasing the productivity of MSME businesses because it provides access to various tools and platforms that can help merchants accelerate their business processes, increase efficiency, and expand the market. The ability to adapt to technological changes as well as take advantage of a wide range of digital services allows traders to remain competitive in an increasingly growing and dynamic market. Therefore, it is important for MSME traders to continue to develop their digital literacy, in order to maximize their potential and increase their business productivity in a sustainable manner.

The Influence of Creativity on Productivity

The reported path coefficient between creativity and productivity is positive ($\beta = 1.272$). This is consistent with the broader SME literature showing that creativity is an important source of innovation and that innovation can contribute to SME performance (Castillo-Vergara & García-Pérez-de-Lema, 2021). The reported coefficient is larger than the other paths in the model, although its magnitude should be interpreted cautiously because it exceeds 1.0 and the manuscript does not report collinearity diagnostics.

Furthermore, they can add details or additional explanations to the main idea, develop concepts into more complex and in-depth forms, organize ideas into structured and detailed plans or products, and refine and perfect ideas into a more mature final form. This enables respondents to understand relevant work procedures and technical information, identify solutions to work-related problems based on their insights or knowledge, apply theories or concepts learned in real work situations, operate work tools or technology efficiently, complete technical tasks according to time and quality standards, demonstrate precision and consistency in technical work execution, work independently or in teams to achieve work targets, adapt to changes or work challenges, manage time and workload effectively, exhibit high responsibility for assigned tasks, show a good work ethic such as discipline, honesty, and loyalty, and actively and positively communicate and collaborate with colleagues.

The impact of creativity on productivity can be seen in how it encourages individuals or groups to create new and innovative solutions when facing various challenges. When someone has the ability to think creatively, they can find new, more efficient ways to solve problems or optimize work processes. Innovations resulting from this creativity enable tasks to be completed more quickly and effectively, directly contributing to increased productivity. Additionally, creativity opens opportunities for the development of more appealing and relevant products or services to market needs. By creating new things or improving existing ones, creativity plays a role in enhancing competitiveness and creating added value for a company or organization. This affects long-term success, as innovative products or services can attract consumer attention and boost sales.

Creativity also plays a crucial role in improving work quality and reducing potential barriers. Creative individuals or teams tend to be more capable of adapting to changes and finding alternative solutions when facing difficulties. The ability to think outside conventional norms allows them to address problems flexibly, leading to enhanced efficiency and productivity. Thus, creativity not only enriches the work process but also accelerates the achievement of optimal results.

The Influence of Innovation on Productivity

The reported path coefficient between innovation and productivity is positive ($\beta = 0.704$). This finding is broadly consistent with Irwan et al. (2023), who reported a positive role of innovation in strengthening competitive advantage among SMEs, and with Castillo-Vergara and García-Pérez-de-Lema (2021), who linked product innovation with SME performance. In this study, innovation reflects respondents' access to resources and information, openness to new ideas, willingness to experiment, and capacity to identify new business opportunities.

The influence of innovation on productivity can be seen in how it brings significant changes to work methods, tools, or processes used. Innovation creates new solutions that can streamline workflows and reduce the time needed to complete specific tasks. By introducing new technologies or more efficient methods, innovation can eliminate barriers in daily operations, allowing companies or individuals to work more quickly and effectively, thereby increasing overall productivity.

Moreover, innovation plays a crucial role in creating better products or services that are more relevant to market needs. By developing new products or improving existing ones, innovation not only enhances quality but also broadens consumer appeal. This enables companies to maintain a competitive advantage in the market, which in turn drives increased sales and business growth. This directly affects productivity, as more satisfied customers lead to greater profits.

Innovation can also motivate employees and teams to be more creative in their tasks, as they feel empowered to find new ways to accomplish work. When innovation is embraced and implemented in the workplace, employees tend to feel more engaged and motivated to deliver their best results. An innovative work environment encourages the exploration of new ideas, ultimately resulting in increased efficiency and productivity. Thus, innovation not only affects products or services but also contributes to a better work spirit and collaboration within teams.

5.0 CONCLUSION

The reported PLS-SEM model indicates positive relationships between digital literacy, creativity, innovation, and the productivity of MSME traders in the UP2K-PKK Beliung Group in Jambi City. Digital literacy, creativity, and innovation show positive path coefficients of 0.976, 1.272, and 0.704, respectively, while the model reports $R^2 = 0.997$ for productivity. These results suggest that stronger digital capability, creative problem solving, and innovation are closely associated with higher productivity within this group. However, because the reported output does not include bootstrapped significance statistics or collinearity diagnostics, the findings should be interpreted as model-specific associations rather than as definitive evidence of causal effects.

The results can inform entrepreneurship and MSME-development initiatives, particularly those aimed at strengthening digital capability, creativity, and innovation. Future studies should involve MSMEs from different regions or business sectors, use larger samples where possible, and report a more complete PLS-SEM assessment, including AVE, discriminant validity, VIF, bootstrapped t-statistics, p-values, confidence intervals, and predictive-relevance measures. Qualitative and longitudinal approaches may also provide deeper insight into how these capabilities develop and whether their relationships with productivity persist over time.

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