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# Participatory Financial Literacy and Cooperative-Based Digital Entrepreneurship for Women Empowerment: A Collaborative Community Service Program in Rural Agricultural Communities

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## ABSTRACT

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Rural women in agricultural communities frequently encounter structural barriers involving financial exclusion, limited entrepreneurial capacity, weak digital literacy, and restricted institutional access, constraining local economic resilience and sustainable development. This article analyzes a participatory community service program focused on strengthening financial literacy, cooperative-based entrepreneurship, and digital market participation among women farmer groups in Northern Vietnam. Using a community-based participatory research and collaborative governance framework, the program integrated university-community partnerships, local cooperative institutions, village governance structures, and women associations over an eight-month implementation period. The intervention combined participatory financial education, digital entrepreneurship mentoring, cooperative strengthening workshops, peer-learning mechanisms, and mobile-based business training adapted to local socio-economic conditions. Empirical findings indicate that collaborative and participatory approaches significantly improved household financial management, digital business participation, cooperative engagement, and women's economic confidence. The results further demonstrate that sustainable empowerment depended upon institutional integration, local leadership participation, peer mentoring continuity, and community ownership rather than short-term technical intervention alone. The article contributes to community engagement and social innovation scholarship by developing a sustainability-oriented model linking community participation, institutional collaboration, financial empowerment, cooperative innovation, and rural resilience. The study also highlights

the strategic importance of gender-sensitive financial literacy and collaborative local governance in supporting inclusive rural economic transformation and long-term community sustainability.

**Keywords:** community empowerment; women empowerment; financial literacy; cooperative development; digital entrepreneurship; participatory governance; rural development; social innovation

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## Introduction

Rural agricultural communities continue to experience significant socio-economic vulnerability despite increasing global attention toward inclusive development and sustainable local empowerment. Structural challenges involving limited financial inclusion, unstable agricultural income, restricted market access, low educational attainment, and weak institutional coordination frequently constrain rural resilience and long-term economic sustainability. These challenges disproportionately affect women, who often occupy informal and unpaid economic roles while simultaneously carrying household caregiving responsibilities and community social obligations. According to the World Bank (2023), women in rural agricultural regions remain substantially less likely than men to access formal financial systems, digital entrepreneurship opportunities, and institutional development programs.

The rapid expansion of digital economies and mobile-based financial services has created both opportunities and inequalities within rural communities. On one hand, digital marketplaces, mobile banking systems, and online entrepreneurship platforms can support broader market participation and income diversification. On the other hand, rural women frequently face barriers involving low digital literacy, limited financial knowledge, technological inaccessibility, and socio-cultural constraints restricting participation in economic decision-making processes. UN Women (2024) emphasizes that women's digital exclusion increasingly functions as a development challenge affecting household welfare, educational opportunity, and community resilience.

The implementation setting for this community service program was the rural agricultural district of Bắc Hà in Northern Vietnam, where smallholder farming remains the dominant source of household livelihood. Local development reports from 2023 indicated that approximately 74 percent of women participants relied upon informal agricultural production and household microenterprises for supplemental income. However, fewer than 30 percent of women farmers possessed access to formal financial literacy training, and only 19 percent reported active participation in digital market activities. Community observations additionally revealed weak cooperative participation, inconsistent household financial planning, and limited understanding of digital business systems.

The community problem extended beyond economic limitations alone. Existing empowerment programs frequently relied upon short-term assistance or administrative training models lacking participatory engagement and sustainability planning. Many interventions focused narrowly on agricultural productivity while neglecting financial capability, institutional participation, digital adaptation, and local leadership development. Furthermore, fragmented institutional coordination among local cooperatives, women associations, village governance structures, and external development agencies weakened long-term

continuity and community ownership.

Previous studies emphasize that participatory community empowerment programs are more sustainable when local communities actively shape implementation processes and institutional governance arrangements (Cornwall, 2016). Community development scholarship further argues that collaborative governance strengthens empowerment outcomes by integrating local institutions, social organizations, and educational actors into shared problem-solving frameworks (Ansell & Gash, 2008). Research on women empowerment additionally demonstrates that financial literacy and economic participation contribute significantly to household resilience and social agency when combined with institutional support mechanisms (Kabeer, 2020).

Other scholars emphasize the growing importance of digital entrepreneurship within rural development strategies. OECD (2024) argues that digital participation enables rural communities to diversify economic activities and strengthen adaptive resilience under conditions of market uncertainty and climate vulnerability. Similarly, social innovation literature highlights that community-based entrepreneurship becomes more sustainable when embedded within local cooperative systems and peer-learning structures (Moulaert et al., 2019). However, existing programs frequently prioritize technical entrepreneurship skills while neglecting participatory governance and community ownership dimensions.

Current scholarship also remains limited in several important respects. First, many financial literacy interventions remain individualistic and insufficiently integrated into collective community structures. Second, digital entrepreneurship programs often fail to address gendered participation barriers within rural societies. Third, insufficient attention has been paid to how cooperative institutions can function as collaborative governance mechanisms supporting sustainable empowerment. Fourth, current community service literature rarely integrates financial literacy, women empowerment, digital adaptation, and social innovation within a unified participatory framework.

This community service program addresses these gaps through a participatory and collaborative empowerment approach integrating financial literacy education, cooperative strengthening, digital entrepreneurship mentoring, and local governance participation. The novelty of the program lies in its combination of women-centered peer learning, cooperative-based economic collaboration, mobile digital entrepreneurship training, and institutional partnership mechanisms involving universities, local governments, women associations, and agricultural cooperatives.

Rather than positioning participants as passive recipients of technical assistance, the program encouraged women participants to become active decision-makers, peer facilitators, and local economic mentors within community empowerment processes. The intervention additionally established collaborative governance forums linking village authorities, women associations, cooperatives, and university outreach teams to support sustainability and institutional continuity.

This article aims to analyze how participatory financial literacy and cooperative-based digital entrepreneurship programs contribute to women empowerment, collaborative governance, social innovation, and sustainable rural community development.

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## Method

This community service program employed a community-based participatory research (CBPR) framework integrated with collaborative governance analysis and empowerment evaluation to examine how financial literacy and cooperative-based digital entrepreneurship could strengthen women's economic participation and rural resilience within agricultural communities. The program was implemented over eight months between October 2024 and May 2025 in Bắc Hà District, Northern Vietnam, selected due to its high dependence on small-scale agriculture, low women's financial inclusion rates, limited digital entrepreneurship participation, and active local cooperative structures. The participatory framework emphasized shared decision-making involving women farmer groups, village authorities, agricultural cooperatives, university facilitators, youth volunteers, and local women associations. Program stages included participatory needs assessments, community consultations, collaborative curriculum development, household financial literacy workshops, digital entrepreneurship mentoring, cooperative strengthening forums, peer-learning circles, and sustainability planning sessions. Educational activities combined participatory discussion methods, mobile-based practical learning, community business simulations, collective reflection forums, and peer mentoring systems adapted to local socio-cultural conditions and educational backgrounds.

Data collection utilized mixed qualitative and quantitative community engagement techniques involving baseline and post-intervention surveys, participatory observations, attendance records, financial literacy assessments, digital business activity monitoring, community reflection meetings, and institutional collaboration analysis. Evaluation indicators included household budgeting practices, digital market participation rates, cooperative engagement intensity, women's decision-making confidence, mobile financial application usage, and collaborative participation outcomes. Institutional analysis examined coordination quality among universities, village governance actors, cooperatives, women organizations, and local development offices. Sustainability assessment focused on peer mentoring continuity, cooperative integration, institutional commitment, and locally managed learning structures after formal program completion. Ethical considerations included informed participant consent, voluntary participation, culturally sensitive facilitation approaches, and collaborative validation of program findings through village-level discussion forums. Nevertheless, the program acknowledged limitations related to inconsistent internet connectivity, seasonal agricultural labor demands, and varying literacy levels among participants.

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## Results and Discussion

### 1. Community Participation and Women-Centered Empowerment Dynamics

The first major finding concerns the role of participatory engagement in strengthening women's empowerment outcomes. Initial community assessments involving 96 women participants indicated limited confidence regarding household financial management, low familiarity with formal savings systems, and minimal exposure to digital business platforms. Approximately 67 percent of participants reported that

household financial decisions were traditionally dominated by male family members, while only 21 percent actively participated in cooperative meetings prior to the intervention.

The participatory implementation model significantly increased community engagement and local ownership. Rather than relying upon formal lecture-based instruction, facilitators employed small-group discussions, peer storytelling, household financial simulations, and collaborative problem-solving activities. Women participants were encouraged to identify financial challenges within their households and collectively develop locally relevant solutions. Participation records demonstrated strong engagement, with average attendance exceeding 85 percent across community workshops and mentoring activities.

Peer-learning mechanisms proved particularly effective in reducing social hesitation and strengthening women’s confidence. Participants initially expressed concerns regarding digital financial systems and online business participation due to fear of financial loss and technological unfamiliarity. However, women-led discussion groups gradually created supportive learning environments enabling participants to practice digital transactions, budgeting exercises, and mobile-based entrepreneurship activities collectively.

Post-program assessments demonstrated measurable changes in empowerment outcomes. Approximately 72 percent of participants reported independently managing household budgeting systems by the end of implementation, compared to 28 percent during baseline assessments. Furthermore, women participants increasingly assumed active roles in cooperative discussions and local economic planning forums. These findings support empowerment scholarship emphasizing that participatory learning strengthens social agency and collective confidence rather than merely transferring technical knowledge (Kabeer, 2020).

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## 2. Institutional Collaboration and Cooperative-Based Governance

The second major finding concerns the importance of collaborative institutional governance in supporting sustainable community empowerment. The program integrated multiple institutional actors, including village authorities, local agricultural cooperatives, women associations, university outreach teams, and community youth volunteers. This collaborative arrangement enabled resource sharing, local legitimacy, and stronger continuity mechanisms.

**Table 1. Analytical Matrix of Participation, Collaboration, and Social Innovation Outcomes**

<b>Variable</b>	<b>Initial Community Condition</b>	<b>Intervention Strategy</b>	<b>Institutional Collaboration</b>	<b>Measurable Outcomes</b>	<b>Analytical Interpretation</b>
<b>Financial Literacy</b>	Weak household financial	Participatory financial	University facilitators	72% increase in structured	Financial capability

	l plannin g	educati on worksh ops	and wome n associ ations	ured house hold budge ting	improv ed econom ic confide nce
<b>Coopera tive Particip ation</b>	Low women involve ment in coopera tive governa nce	Cooper ative leaders hip mentori ng and peer- learnin g forums	Villag e author ities and coope ratives	58% increa se in wome n partic ipatio n in coope rative meeti ngs	Instituti onal inclusio n strenght ened local governa nce
<b>Digital Entrepr neurshi p</b>	Minima l online busines s engage ment	Mobile- based digital marketi ng and entrepr neursh ip training	Unive rsity and youth volunt eer collab oratio n	49% increa se in digita l produ ct prom otion activit ies	Digital adaptati on expand ed market particip ation
<b>Savings and Financia l Inclusio n</b>	Limited formal savings behavio r	Commu nity savings mentori ng and mobile finance guidanc e	Local financ ial coope ratives	61% increa se in regula r savin gs practi ces	Financi al inclusio n improv ed househ old resilien ce
<b>Commu nity Particip ation</b>	Low confide nce in institutio nal progra ms	Collabo rative decisio n- making forums	Wome n organi zation s and villag e gover nance	Partic ipatio n attend ance avera ged 85%	Particip atory governa nce strenght ened local owners hip
<b>Youth Involve ment</b>	Limited intergen erationa l collabor ation	Youth- support ed digital mentori ng system	Local youth organi zation s	27 youth volun teers beca me digita l	Interge neration al collabor ation strenght ened sustaina ble

				mento rs	bility
<b>Sustaina bility Capacity</b>	Depend ence on external facilitat ion	Commu nity- manage d peer mentori ng structur es	Coope rative and villag e integr ation	Establ ishme nt of local wome n digita l busin ess netwo rk	Sustain ability improv ed through instituti onal embedd ing

The table demonstrates that collaborative governance mechanisms substantially influenced empowerment outcomes. Agricultural cooperatives played a particularly important role because they functioned not only as economic institutions but also as community coordination platforms supporting information exchange, collective learning, and local trust-building. Women associations additionally strengthened social mobilization and participant recruitment through existing community networks.

Village governance structures contributed institutional legitimacy and logistical coordination, while university teams provided technical facilitation and curriculum support. Youth volunteers acted as digital intermediaries assisting participants with mobile applications, online market platforms, and digital communication practices. This intergenerational collaboration significantly reduced technological barriers among older participants.

The findings indicate that empowerment programs become more sustainable when embedded within existing local institutions rather than operating as isolated external interventions. Collaborative governance therefore functioned as both an implementation mechanism and a sustainability strategy. This aligns with governance scholarship emphasizing that institutional integration strengthens community resilience and adaptive local development (Torfing et al., 2021).

However, coordination challenges also emerged during implementation. Differences in organizational priorities occasionally delayed decision-making processes, particularly concerning scheduling and resource allocation. Furthermore, several cooperative leaders initially perceived women-centered empowerment initiatives as supplementary rather than strategically important for local development. Continuous dialogue and participatory reflection forums were therefore necessary to strengthen institutional commitment and collaborative alignment.

### 3. Digital Entrepreneurship and Social Innovation Outcomes

The third finding concerns the role of digital entrepreneurship in promoting social innovation and adaptive rural resilience. Prior to the intervention, most participants relied upon local markets and informal trading systems with limited customer reach. Mobile phones were primarily used for communication rather than economic activities, and many participants possessed minimal familiarity with digital business

platforms.

The intervention introduced mobile-based entrepreneurship training involving digital product promotion, online customer engagement, basic e-commerce practices, and cooperative-based collective marketing strategies. Rather than emphasizing complex technological systems, the program focused on practical digital applications relevant to local agricultural products and household enterprises.

Several women participants began utilizing social media platforms and community messaging applications to promote agricultural goods, handicrafts, and processed food products. Cooperative groups additionally experimented with collective online product catalogs and shared digital branding strategies. Approximately 49 percent of participants actively engaged in digital product promotion activities following program completion.

Importantly, digital entrepreneurship also generated broader social innovation dynamics. Participants increasingly collaborated in collective product marketing, transportation coordination, and shared online customer management. Women groups established informal peer-support systems assisting members with digital communication, online transactions, and product photography. These collaborative practices strengthened community solidarity and reduced individual economic vulnerability.

The findings demonstrate that social innovation within rural communities emerges not merely from technological access but from collaborative adaptation and locally embedded experimentation. This supports previous scholarship emphasizing that sustainable innovation depends upon collective learning, social trust, and participatory institutional arrangements rather than technological intervention alone (Moulaert et al., 2019).

Nevertheless, structural limitations remained significant. Internet instability, transportation costs, fluctuating agricultural production, and limited access to formal financial capital continued affecting long-term business expansion potential. Consequently, digital entrepreneurship programs require complementary infrastructure and policy support to sustain broader developmental impacts.

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#### **4. Sustainability, Local Ownership, and Long-Term Community Resilience**

The final major finding concerns sustainability and community ownership mechanisms. Many rural empowerment initiatives fail because external facilitation ends without local continuity structures. This program therefore emphasized institutional embedding and peer mentoring from early implementation stages.

One significant sustainability outcome involved the establishment of a women-led digital business and financial mentoring network coordinated through local cooperatives and women associations. The network continued organizing monthly peer-learning meetings, collaborative savings discussions, and digital entrepreneurship support activities after formal implementation concluded.

Community ownership strengthened progressively throughout the program because participants increasingly assumed facilitation and mentoring roles. Women participants who demonstrated strong digital

competency and financial management practices became local peer facilitators supporting newer participants. This transition from participant dependency toward community-led mentoring significantly enhanced sustainability potential.

Village authorities additionally integrated women-centered financial literacy activities into broader local economic development planning processes. Cooperative institutions agreed to continue supporting digital marketing initiatives and community savings mentoring as part of future organizational activities. These institutional commitments strengthened long-term continuity and reduced dependence on external university facilitation.

However, sustainability challenges remained important. Seasonal agricultural demands occasionally reduced participation continuity, while economic instability continued influencing household financial vulnerability. Long-term empowerment therefore requires broader structural support involving rural infrastructure investment, digital connectivity improvement, and expanded financial inclusion policy integration.

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## **Sustainability and Social Innovation Model**

### **Community Participation → Collaborative Institutional Governance → Financial and Digital Capacity Building → Cooperative Social Innovation → Sustainable Rural Empowerment**

This article proposes a sustainability and social innovation model explaining how participatory financial literacy and digital entrepreneurship contribute to long-term rural empowerment and community resilience.

Community participation represents the foundational mechanism enabling local ownership, trust-building, and culturally relevant empowerment processes. Programs that actively involve communities in decision-making and implementation generate stronger social legitimacy and adaptive learning capacity.

Collaborative institutional governance functions as the second mechanism linking village authorities, cooperatives, women associations, universities, and local organizations into integrated empowerment networks. Institutional collaboration strengthens resource coordination, implementation continuity, and governance legitimacy.

Financial and digital capacity building constitute the third mechanism involving household financial management, savings practices, digital entrepreneurship skills, cooperative engagement, and adaptive technological literacy. Sustainable empowerment emerges when communities possess both economic capability and institutional confidence.

Cooperative social innovation represents the fourth mechanism through collective entrepreneurship, peer mentoring, shared digital marketing, collaborative savings systems, and locally generated economic adaptation strategies. Innovation within rural communities becomes sustainable when embedded within trust-based cooperative structures and community relationships.

Finally, sustainable rural empowerment represents the long-term outcome involving strengthened women's agency, increased household resilience, institutional participation, adaptive economic capacity, and locally managed development continuity. The model therefore conceptualizes empowerment as an institutional and relational process rather than merely an individual economic outcome.

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## **Conclusion**

This article analyzed a participatory financial literacy and cooperative-based digital entrepreneurship program implemented among women agricultural communities in Northern Vietnam. The program sought to strengthen women's empowerment, collaborative governance, social innovation, and sustainable rural resilience through participatory and community-centered intervention strategies.

The findings demonstrate that participatory approaches significantly improved household financial management, women's economic confidence, cooperative participation, and digital entrepreneurship engagement. Women participants increasingly assumed active roles in local decision-making and collaborative economic activities, indicating that empowerment outcomes extended beyond technical financial skills toward broader social agency and institutional participation.

Institutional collaboration emerged as a critical factor influencing sustainability and implementation effectiveness. Cooperative organizations, village governance structures, women associations, universities, and youth volunteers collectively strengthened community mobilization, resource integration, and local legitimacy. The findings therefore reinforce collaborative governance scholarship emphasizing that sustainable community empowerment depends upon relational institutional coordination and trust-building processes.

The intervention additionally contributed to social innovation through the development of peer-learning networks, cooperative-based digital entrepreneurship practices, and women-led mentoring systems. Digital adaptation became more sustainable when linked to collective community structures rather than individual entrepreneurial competition alone.

The sustainability implications are significant. Long-term empowerment depended upon local ownership, peer facilitation continuity, institutional integration, and community-managed mentoring systems. Programs emphasizing short-term technical intervention without institutional embedding are unlikely to generate durable socio-economic transformation within vulnerable rural communities.

Policy implications suggest that governments, universities, and development organizations should integrate participatory governance, women-centered empowerment strategies, cooperative institutional strengthening, and digital adaptation into broader rural development frameworks. Financial literacy and digital entrepreneurship programs should additionally prioritize community ownership and local leadership development rather than externally driven implementation models.

Nevertheless, several limitations remain. Structural rural inequalities involving infrastructure limitations, unstable agricultural income, and limited financial access continue affecting long-term

sustainability outcomes. Future programs should therefore integrate broader economic policy support, rural digital infrastructure investment, and expanded cooperative financing mechanisms.

Ultimately, this article argues that sustainable rural development requires more than economic assistance alone. It requires participatory governance, collaborative institutions, gender-sensitive empowerment strategies, and socially embedded innovation processes capable of strengthening long-term community resilience and inclusive development.

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