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Digital Transformation Barriers among Rural Women Entrepreneurs in Selected Rural Areas of Rajshahi and Naogaon Districts, Bangladesh: A Qualitative Study

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ABSTRACT

The digital revolution has opened up fresh avenues for small businesses with digital marketing, digital payment systems and social media. Rural women entrepreneurs in Bangladesh are increasingly experimenting to use digital tools to enhance their market access and business sustainability. But many are dealing with major challenges for effective digital adoption. This study aims to understand the problems of digital transformation of rural women handicraft entrepreneurs in Bangladesh. In-depth semi-structured interviews with 25 rural women entrepreneurs were conducted in selected rural areas with the qualitative descriptive approach. Thematic analysis was used to identify the key barriers to digital adoption. The results indicate that digital participation is hindered by limited digital literacy, poor access to technology, poor online marketing skills, and low digital financial knowledge. Also, digital transformation is impeded by institutional barriers like inadequate training opportunities, lack of financial resources, and low institutional support. The study suggests practical digital training, better internet facilities in rural areas and financial assistance to encourage sustainable digital entrepreneurship among rural women in Bangladesh.

1. Introduction

In developing countries, entrepreneurship is known to be a key factor in economic growth, employment creation, poverty alleviation and social development. Women entrepreneurship has slowly become an important source of income generation and economic participation in rural areas of Bangladesh. Small scale entrepreneurial activities like embroidery, weaving, boutique work, nakshi kantha production, bamboo crafts, etc. are being undertaken by the rural women. These businesses not only help to sustain the livelihoods of families but also help to preserve traditional cultural products and local economic development [1].

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Digital transformation has transformed business operations in recent years, both in developed and developing economies. With the rise of smartphones, mobile internet services, social media, digital payment systems, and e-commerce marketplaces, micro and small entrepreneurs have new opportunities to grow their businesses beyond the local market. The widespread adoption of internet and mobile financial services like bKash and Nagad in Bangladesh has helped to boost the adoption of digital platforms for business activities. The Bangladesh Telecommunication Regulatory Commission (BTRC) has reported that internet usage and the adoption of smartphones have grown significantly in the last decade, opening up new avenues for online entrepreneurship and digital commerce. In today's digital age, entrepreneurs can leverage digital technologies to sell their products online, to communicate with their customers directly, customers, to handle digital transactions, and to connect with At relatively low costs, larger markets at relatively low costs [2]. Beyond the obvious benefits of the digital platform, there are additional benefits that can be provided to the rural women. entrepreneurs, since they can assist in reducing mobility. challenges, improve flexibility of business and expand. market reach. For handicraft businesses, social media Like Facebook and WhatsApp, the app has become very popular. Digital technologies have become increasingly important because they enable business owners to promote and market their products through online platforms. These technologies allow entrepreneurs to communicate with customers, receive digital payments, and expand their market reach without maintaining a physical store. Consequently, digital transformation provides rural women entrepreneurs with new opportunities to improve business sustainability and income generation.The digital technologies use by rural women, however, is not the same as in urban areas[3]entrepreneurs in Bangladesh is still not uniform and widespread. There are still a lot of women who struggle to use digital tools effectively in their business.[3] The literature reviewed reveals that there are several barriers such as lack of digital literacy, lack of access to technological devices and Internet services, lack of digital financial knowledge, lack of training opportunities, financial constraints, and socio-cultural constraints [4]. Weak institutional support systems and lack of reliable market information in rural areas further limit women entrepreneurs' ability to engage in digital business activities effectively.

Handicraft is one of the most significant sectors of women entrepreneurship in rural areas of Bangladesh. There is a huge market potential for handcrafted products like nakshi kantha, handmade fabrics, decorative items, embroidery products etc. online business. But, many women entrepreneurs in rural areas are still not able to fully leverage digital technologies to grow their businesses and make them more competitive. The sector remains constrained by structural inequalities, low technological capability, financial constraints and lack of institutional support to enable digital transformation [5].

While there are various studies on women entrepreneurship and small business development in Bangladesh, few studies have focused on the barriers faced by rural women entrepreneurs in the handicraft sector in the context of digital transformation. The existing literature tends to be general in scope, either on women entrepreneurship or rural development, and lacks detailed qualitative evidence of the interaction between digital capability constraints and institutional barriers in determining digital adoption by rural handicraft entrepreneurs [6]. Moreover, there is limited research that has examined the link between digital transformation challenges and business sustainability in rural women-led handicraft businesses.

In this context, the present study aims to explore the challenges faced by the rural women entrepreneurs in the handicraft sector in Bangladesh regarding digital transformation. The study defines digital transformation as the use and implementation of digital technologies such as social media platforms, online marketing tools, mobile financial services, and internet-based communication systems in business activities and market expansion by entrepreneurs. The study is based on the experiences of rural women entrepreneurs and looks at the factors affecting digital capability and institutional barriers that affect digital adoption and business sustainability. The results will be useful for the expanding body of literature on digital inclusion, women entrepreneurship and rural business development in developing countries like Bangladesh.

The primary aim of this study is to explore the challenges in digital transformation for rural women entrepreneurs in the handicraft sector of Bangladesh.

Research Questions

RQ1: What are the effects of the digital capability factors on the use of digital technologies by rural women entrepreneurs in the handicraft sector?

RQ2: What are the institutional challenges that prevent rural women entrepreneurs from using digital platforms effectively?

RQ3: What are the barriers to digital transformation and how do they impact the growth and sustainability of rural women entrepreneurs?

The specific objectives are:

- To identify the digital capability barriers experienced by rural women handicraft entrepreneurs in the selected rural areas.

- To examine the institutional barriers affecting the adoption of digital technologies among rural women handicraft entrepreneurs.
- To explore the perceived strategies for improving digital transformation among rural women handicraft entrepreneurs.

2. Theoretical Foundation

The study is mainly guided by the Technology Acceptance Model (TAM) and Institutional Theory to understand the obstacles that hinder digital transformation in the handicraft sector of rural women entrepreneurs in Bangladesh [6].

The Technology Acceptance Model proposes that people are more inclined to use technology if they believe it is useful and easy to use. Digital literacy, online marketing capability, access to technological devices and digital financial knowledge affect the confidence of Entrepreneurs' technological ability and their experience with digital platforms can be a constraint in their willingness and ability to use digital business practices.

Institutional Theory also provides an explanation of the
The role of external institutional factors on entrepreneurial decision making.
activities. Institutional support systems such as training,
The access to finance, market information and government are the three factors.
or institutional support are important enablers of digital transformation. Rural women entrepreneurs
Bangladesh could be facing limitations to the digital world.
The poor institutional support and lack of infrastructure have negatively affected the economy.
Limited access to formal business and infrastructure.
networks [7].

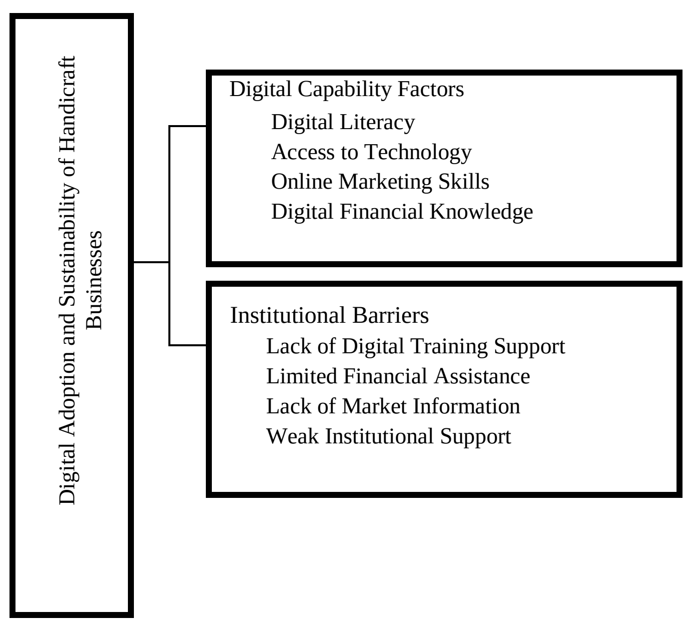
The study integrates these two theoretical approaches to
Recognize the concept of digital transformation of rural women entrepreneurs is not only driven by their own
As well as technological skills, by the institutional and structural context. Therefore, personal information technology competence
and supportive institutional environments are needed for successful digital adoption.

3. Conceptual framework

The conceptual framework of this study shows the key factors affecting digital transformation of rural women entrepreneurs in the handicraft sector in Bangladesh. The framework is split into two key dimensions: digital capability factors and institutional barriers. All these factors play a role in digital adoption and business sustainability.

Digital capability factors are internal factors that are needed to be effective in using digital technologies in business activities, the first dimension. These factors encompass digital literacy, access to technology, online marketing skills, and digital financial literacy. Digital literacy helps entrepreneurs use their smartphones, social media and communication systems on the internet for business. Entrepreneurs' participation in online business activities is dependent on access to smartphones, stable internet services, and digital devices. Likewise, online marketing capability and knowledge of digital financial services affects product promotion, customer communication and digital transaction management [8].

The second dimension is institutional barriers, which are external barriers that limit the participation of rural women entrepreneurs in the digital world. These barriers encompass lack of digital training opportunities, financial support, market information, and institutional support. Women entrepreneurs are not well informed about online business management, digital marketing and financial technologies in many rural areas. Their capacity to grow businesses using digital platforms is also limited by restricted access to loans, weak institutional networks and limited market information.
The framework is based on the assumption that the higher the digital skills, the better the digital adoption and the sustainability of the business, while institutional barriers have a negative impact on the digital transformation process. These internal and external factors influence the overall digital participation of rural women entrepreneurs in the handicraft sector.



4. Methodology

4.1 Research Design

This study employed a qualitative descriptive research design to explore the digital transformation barriers experienced by rural women handicraft entrepreneurs in selected rural areas of Rajshahi and Naogaon districts. A qualitative method was deemed suitable for the study as it sought to gain insight into the participants lived experiences, perceptions and challenges associated with the use of digital technologies in business activities.

4.2 Study Area

The study was carried out in selected rural areas of Rajshahi and Naogaon districts of Bangladesh where women are involved in handicraft based entrepreneurial activities to a certain extent. The participants were selected from 10 rural villages located in Rajshahi and Naogaon districts through purposive sampling..The areas were chosen as they have rural women who are actively involved in embroidery, boutique work, nakshi kantha production, crochet, bamboo crafts and other small scale handicraft activities.

Furthermore, the identified areas are in rural areas where digital infrastructure, training and institutional support systems are relatively scarce. Hence, these areas were suitable for the study of the problems of digital transformation of rural women entrepreneurs..

4.3 Participants and Sampling

The respondents of this study were 25 rural women entrepreneurs who are actively engaged in handicraft activities. The initial sampling was purposive to identify women entrepreneurs with relevant experience in business operations and use of digital technology. Later, a snowball sampling technique was used, with some of the participants recommending other entrepreneurs in their social and business circles. Only women entrepreneurs who had been involved in business for at least two years were included in the study to ensure that they had enough entrepreneurial experience. This criterion was used because entrepreneurs who have been in business for a shorter period may not have faced significant issues with digital business operations, market expansion or institutional support systems. The majority of the participants were small business owners with products like nakshi kantha, handmade clothes, embroidery products, boutique products, decorative crafts, and crochet products. A few participants already had some experience with digital tools (Facebook, WhatsApp, mobile banking services, online communication platforms) for limited business activities, others had limited exposure to digital business practices.

4.4 Instrument Development

The data was collected through a semi-structured interview guide that aimed to explore the experiences of the participants with regard to digital transformation and business management. Semi-structured interviews were chosen because they were flexible in the questions asked and were consistent across interviews. The interview questions were based on the following key themes: 1.digital literacy, 2. access to technological devices, 3. online marketing practices, 4. digital financial knowledge, 5. training opportunities, 6. financial challenges, 7. market access, 8. institutional support, and 9. business sustainability. The interview guide was pre-tested with two academic researchers who have experience in entrepreneurship and qualitative research and two experienced women entrepreneurs who are engaged in small business activities before the formal interviews. They provided feedback on the clarity, relevance and sequence of the interview questions. Two rural women entrepreneurs were then interviewed to pilot the questions to make sure they were understood and culturally appropriate. Minor wording changes were then made to clarify and to make the participants more comfortable with the wording.

4.5 Data Collection

Data collection was conducted over a four-month period through face-to-face in-depth interviews. Each interview lasted approximately 40 to 60 minutes. Interviews were conducted primarily in Bengali to ensure participant comfort and encourage detailed responses.
Before each interview, participants were informed about the purpose of the study, and verbal informed consent was obtained. With participants' permission, interviews were audio-recorded using mobile devices to ensure accurate data preservation.
During the interviews, participants discussed their experiences regarding digital technology use, online business practices, access to training, financial difficulties, market communication, and institutional support systems. Field notes were also maintained during the interviews to capture contextual observations and non-verbal expressions.

4.6 Data Analysis

The interviews were transcribed and translated into English. English for analysis. Thematic analysis was used to identify themes and patterns in the data. The analysis process went through several stages. The interview Transcripts were read multiple times to become familiar with. the data. Second, statements and repeated phrases. The ideas on digital transformation challenges were identified and coded. Third, codes were grouped into larger categories and themes. The final themes were grouped into two broad areas: Digital capability factors The institutional barriers and comparisons between participant are also included. There were also responses that were looking for similarities: differences in experiences[9]. Quotes from the Participants were added too to increase the credibility and authenticity of the results.

4.7 Trustworthiness and Research Rigor

Several steps were taken to increase the trustworthiness of the study. The interview guide was first piloted and carefully edited for accuracy and pertinence. Second, In-depth interviews with participants were used to allow for the collection of rich and detailed information, as a result of the extended time spent with participants. Third, all All interview tapes and transcripts were read. several times to minimise transcription errors and enhance analytical accuracy. Fourth, thematic coding was carried out systematically to ensure uniformity of data interpretation. Finally, the results were compared to the literature on women entrepreneurship, digital The inclusion and rural business development to strengthen was the main theme of this event. the trustworthiness and authenticity of the analysis.

5. Results and findings

5.1 Demographic Profile of Respondents

The study was conducted with 25 rural women entrepreneurs who are involved in handicraft based business in selected rural areas of Rajshahi and Naogaon districts in Bangladesh. The participants were engaged in different handicraft activities such as production of nakshi kantha, embroidery, crochet, boutique work, handmade clothing, bamboo crafts and decorative handmade products.

The ages of the participants ranged from 23 to 48 years, with an average age of about 32 years. The majority of the participants were in the age group of 25-35 years, which shows that the rural women are getting more and more involved in small entrepreneurial activities, which are relatively younger. As far as educational qualification is concerned, 11 participants had primary education, 8 had secondary education, 4 had higher secondary education and 2 participants had no formal education.
The majority of the participants were married, and a minority were widowed, divorced, or unmarried. Financial need, lack of job opportunities and family income problems were cited by many respondents as reasons for initiating handicraft enterprises.
The business experience of the participants varied from 2 years to 8 years, with an average of about 4 years. The majority of businesses were small and operated out of homes. At times of high production, a number of businessmen hired temporary workers from the local community.
All participants had mobile phones, but there was wide variation in the use of digital technology. Around 16 participants said they promoted products and communicated with customers on Facebook or Facebook Messenger, and 9 participants occasionally received payments via mobile financial services like bKash and Nagad. But just a few participants showed confidence in their ability to run digital business operations on their own.

Table 1: Demographic Characteristics of Respondents

Table 1. Demographic Characteristics of Respondents (N = 25)

Characteristics	Categories	Frequency (n)	Percentage (%)
Age	23–30 years	10	40.0
	31–40 years	11	44.0
	41–48 years	4	16.0
Education	No formal schooling	2	8.0
	Primary education	11	44.0
	Secondary education	8	32.0
	Higher secondary education	4	16.0
Marital Status	Married	18	72.0
	Widowed/Divorced	4	16.0
	Unmarried	3	12.0
Business Experience	2–4 years	14	56.0
	5–8 years	11	44.0
Common Digital Tools Used	Facebook	16	64.0
	WhatsApp/Imo	11	44.0
	bKash/Nagad	9	36.0

In terms of age, the largest proportion of respondents (44.0%) belonged to the 31–40 years age group, followed by 40.0% in the 23–30 years category and 16.0% in the 41–48 years category. Regarding education, 44.0% had completed primary education, 32.0% had secondary education, 16.0% had higher secondary education, and 8.0% had no formal schooling. Most respondents were married (72.0%), while 16.0% were widowed or divorced and 12.0% were unmarried. More than half of the respondents (56.0%) had between two and four years of business experience. Facebook was the most commonly used digital platform (64.0%), followed by WhatsApp/Imo (44.0%) and mobile financial services such as bKash and Nagad (36.0%).

5.2 Digital Capability Factors Influencing Digital Transformation

Table 2. Frequency of Digital Capability Barriers (N = 25)

Digital Capability Barrier	Frequency (n)	Percentage (%)
Limited digital literacy	20	80.0
Limited access to technology	17	68.0
Poor online marketing skills	18	72.0
Low digital financial knowledge	15	60.0

The findings show that rural women entrepreneurs were interested in using digital technologies for business activities, but their participation was constrained by several capability-related barriers. As shown in Table 2, limited digital literacy was the most frequently reported challenge, mentioned by 20 participants (80.0%). Poor online marketing skills were reported by 18 participants (72.0%), limited access to technology by 17 participants (68.0%), and low digital financial knowledge by 15 participants (60.0%). These findings indicate that both technological capability and digital business skills remain significant barriers to digital transformation among rural women entrepreneurs.

5.2.1 Digital Literacy

One of the biggest challenges that participants faced with digital transformation was limited digital literacy. While almost all respondents used mobile phones for personal communication, many did not have the technical expertise to use digital platforms effectively in business. Some of the participants stated that they struggled to develop online business pages, upload product photos, deal with customers online, and use digital communication tools on their own[10]. Younger family members, especially children, were relied upon by many entrepreneurs for their help in online activities. One participant explained: “I can take calls from customers but I don't know how to post pictures of my products or promote effectively on Facebook.” (Participant 7) Another respondent stated: “My daughter is helping me to respond to customers because when I use the online applications I get confused.” (Participant 12) The results indicate that low digital literacy is associated with decreased entrepreneurial confidence and the inability to participate in digital commerce independently. The results are in line with prior research that highlights that technology skills deficiencies are a major barrier to women entrepreneurs' interaction with digital business platforms in developing countries.

5.2.2 Access to Technology

The lack of technology access was also a significant hurdle to digital transformation. While participants had access to smartphones, mobile internet coverage and access to good quality digital devices was still limited in many rural areas. Slow internet services, network interruptions and high mobile data costs were common complaints among participants. These restrictions had a negative impact on communication with customers and slowed down online business activities[11]. One entrepreneur commented: “Customers may send messages, but the internet connection may not be good enough to receive them in a timely manner.” (Participant 4) Another participant stated: Regular online promotion is hard for small businesses like ours because of the high cost of internet packages. (Participant 15) Moreover, some of the respondents were able to share their smartphones with family members, which meant they did not have continuous access to business via digital platforms. The technological constraints limited regular online interaction and limited the extension of market participation.

5.2.3 Online Marketing Capability

The results also show that the level of online marketing skills among the respondents was still relatively low. The majority of entrepreneurs continued to heavily depend on local customers, personal networks, and word-of-mouth communication for product sales. While some of the participants had tried to use Facebook pages and social media platforms, their marketing efforts were not systematic and well-planned. There is little knowledge reported about customer targeting, online advertising, content presentation and digital branding [12].

One respondent explaine: I created a Facebook page but I just don't know how to get customers or more followers. (Participant 10)

Another participant noted: “If they were properly trained, we could sell products outside our local area.” (Participant 18)

5.2.4 Digital Financial Knowledge

Lack of digital financial knowledge also proved to be a significant barrier to digital transformation. While a few were aware of mobile banking services like bKash and

Nagad, many did not trust doing digital financial transactions on their own[13]. Some respondents raised concerns about the security of the transactions, payment mistakes and fraud risks. Others complained of challenges in comprehending digital payment processes and online financial management systems. One participant stated: Sometimes, customers want to pay through bKash but I get afraid of any transactional mistakes. (Participant 5)

Another entrepreneur explained: “Yes, mobile banking is there but I still prefer cash because I am not fully aware of digital payments.” (Participant 20)

The results show that poor digital financial literacy slows down the shift from cash-based business transactions to digital financial systems, reducing the efficiency of businesses and access to markets. Apart from the limitations of individual capabilities, the study revealed some institutional constraints that adversely affect rural women entrepreneurs in the process of digital transformation. Some of these barriers are lack of training opportunities, less financial support, less market information, and less institutional assistance [14].

5.3 Institutional Barriers Affecting Digital Transformation

Institutional Barrier	Frequency (n)	Percentage (%)
Inadequate training opportunities	19	76.0
Limited financial support	18	72.0
Limited market information	16	64.0
Weak institutional support	17	68.0

Table 3. Frequency of Institutional Barriers (N = 25)

In addition to individual capability limitations, the study identified several institutional barriers that negatively influenced digital transformation among rural women entrepreneurs. As presented in Table 3, inadequate training opportunities were reported by 19 participants (76.0%), making it the most frequently mentioned institutional barrier. Limited financial support was reported by 18 participants (72.0%), weak institutional support by 17 participants (68.0%), and limited market information by 16 participants (64.0%). These findings suggest that rural women entrepreneurs face substantial institutional constraints in accessing digital knowledge, financial resources, market information, and organizational support.

5.3.1 Inadequate Training Opportunities

A lack of structured training opportunities was consistently highlighted by participants. The majority of the respondents said that they have never taken any formal training on digital marketing, online business management or digital financial systems [15].

Several participants explained that there were few training programs in rural areas and that information on participation in training programs was not always available. One respondent explained: “After the training, I hear about it.” (Participant 9) Another participant stated: “If there were business training available in our village, it would enable us to enhance our business.” (Participant 14) Entrepreneurs have limited opportunities to learn digital business skills, as there are no accessible training opportunities.

5.3.2 Limited Financial Support

Financial constraint was identified as one of the biggest challenges to digital transformation. The loan application process was cited by many respondents as being very complicated, having collateral requirements, and limited institutional support, making it very difficult to obtain loans or formal financial aid. One participant commented: Many documents are requested by the banks, which rural women like us are not easily able to provide. (Participant 3)

Another entrepreneur stated: “This very little financial loan can assist us in purchasing better phones and enhancing the online business activities.” (Participant 22) The lack of finances hinders entrepreneurs to invest in smartphones, Internet services, online promotion, and business expansion activities.

5.3.3 Limited Market Information

The results also show that many rural women entrepreneurs do not have access to the information they need about the market demand, pricing policies and the trends in online markets. The majority of participants relied mainly on local buyers or intermediaries and were not fully aware of other market opportunities.

One participant explained: “Not sure what products are popular in larger cities or online markets.” (Participant 6) The absence of market information makes business planning, product diversification and competitive positioning in digital marketplaces difficult.

5.3.4 Weak Institutional Support

Poor institutional support was another concern which was observed throughout the study. Participants stated that they had not had much interaction with government agencies, business development organizations or entrepreneurship support institutions. One entrepreneur noted: “Most of the support programs are based in towns and not in rural villages like ours.” (Participant 17)

6. Discussion

The purpose of this study was to find out the problems of digital transformation from the handicraft sector of rural women entrepreneurs in Bangladesh. The findings indicate that the individual digital capability constraints and institutional constraints significantly affect the capacity of rural women entrepreneurs for digital business activities. The most important finding of this study is the effect of low digital literacy on the adoption of digital. Most of the participants had a mobile phone and had basic knowledge of mobile communication, but many lacked the skills to use online business platforms on their own. The findings indicate that low digital competence results in low entrepreneurial confidence and on family members in digital business. This aligns with the previous research which found that technological skill constraints is one of the important factors that affect women entrepreneurs in the digital economy in the developing countries [16].

The study also found that the lack of access to reliable Internet services and quality digital devices also restrict regular interaction with online markets. There has been tremendous growth in mobile internet coverage in Bangladesh, but there is a huge digital gap in rural areas. Rural women entrepreneurs continue to have access issues due to poor internet connectivity, high cell data packages and shared digital devices, limiting their digital engagement.

The results are similar to those of other research on women entrepreneurship and rural digital inclusion in developing economies in South Asia. One other important result is that participants lack in online marketing skills. Many entrepreneurs were very reliant on local markets, informal communication networks, and were aware of the business opportunities of social media platforms. The findings show that the knowledge on digital branding, online customer engagement and social media marketing strategies is inadequate, which restricts the opportunities for business expansion. This is in line with past research which has emphasized the importance of access to digital platforms as well as entrepreneurial and marketing skills [17]. Institutional barriers were another major obstacle to digital transformation, in addition to capability barriers. Accessible digital training programmes were repeatedly mentioned as a lack. Many of the respondents reported that there was no training in rural areas or that it was not available due to poor communication and institutional outreach. This indicates that the rural women entrepreneurs are not well integrated into formal entrepreneurial development programmes. There was also a significant impact on digital adoption due to financial constraints amongst the participants. Entrepreneurs were constrained in their ability to invest in digital technologies and business development due to limited access to formal credit and requirements for collateral and complex loan processes.

The results are in line with the institutional theory which states that the structure and institutions play a significant role in influencing entrepreneurial actions and resource availability. Furthermore, the findings indicate that the lack of information regarding the market opportunities and inadequate institutional support systems are obstacles for entrepreneurs to identify the broader market opportunities and to participate in the digital market. Rural women entrepreneurs are often not connected to formal business networks, government programmes and market-oriented institutional support systems [18]. In conclusion, the study shows that digital transformation of rural women entrepreneurs is not just about technology access. Rather, digital adoption must go hand-in-hand with digital capability, institutional support, financial accessibility, training opportunities and market connectivity. Hence, a multi-faceted and inclusive policy approach is needed to tackle digital inequality in rural entrepreneurship.

7. Theoretical Contributions

This study has several important contributions to the existing literature on digital entrepreneurship, rural women entrepreneurship and digital inclusion. The study first extends the application of the Technology Acceptance Model and Institutional Theory to the case of rural women entrepreneurship in developing economies. The findings reveal that perceived usefulness and technological capacity are not the only factors influencing digital transformation, but also institutional and structural factors that affect the resource availability [19]. Second, the study provides context-specific qualitative evidence from the rural handicraft sector in Bangladesh, which is an under-researched area in digital entrepreneurship. Research on women entrepreneurship in Bangladesh has been primarily focused on microfinance, problems of entrepreneurship and economic empowerment, and limited research is available on the impact of the constraints of digital capability and institutional barriers to the use of digital business.

8. Practical Implications

The findings of this study have several practical applications for policy makers, development organizations, entrepreneurship support institutions and digital training providers.

Practical and community-based training programs on digitalization are needed for rural women entrepreneurs. The training should focus on social media marketing, communication with customers via the Internet, digital branding, and digital financial management. These programs should be made simple and easily understood so that they can be participated in [20].

Second, inclusive digital entrepreneurship is also dependent on the development of rural digital infrastructure. Rural women entrepreneurs would benefit tremendously from improved internet connectivity, low cost mobile data services, and greater access to digital devices to better engage in online business activities.

Third, more financial support mechanisms for rural women entrepreneurs should be made available to them by financial institutions and the government. The ease of loan application, small-scale digital business grants and low-interest loans could help to increase investment in digital business operations.

Finally, digital inclusion policies should take into account the social and structural barriers faced by rural women entrepreneurs and not use a generic entrepreneurship development approach.

9. Conclusions

The current study examined the obstacles in the digital transformation of women entrepreneurs in the handicraft sector in rural areas of Bangladesh through qualitative interviews with 25 women entrepreneurs from selected rural areas. The findings reveal that the rural women entrepreneurs are very interested in the use of digital technologies for business development, but there are still several capability-related and institutional barriers that hinder their digital participation. The study identified a number of barriers to the use of digital, including a lack of digital literacy, access to technology, digital financial knowledge and online marketing skills. Moreover, digital entrepreneurship among rural women is further hampered by institutional constraints like lack of training opportunities, financial support, market information and institutional support. The results also show that the digital transformation of rural entrepreneurship is not just about access to technology. Institutional environments that are conducive, digital skills that are functional, financial access and improved market connectivity are needed to enable digital adoption. Rural women entrepreneurs will likely remain marginalized from the wider opportunities offered by digital economies if these barriers are not tackled together. The study reveals that if the rural women entrepreneurs are provided with appropriate support systems, they are motivated and willing to adopt digital business practices. Thus, inclusive digital entrepreneurship needs to be fostered through a concerted effort by the government, financial institutions, development organizations, and local support networks.

10. Limitations and Future Research Directions

Some limitations of the study are noted. First, it was a qualitative study and the sample size was limited (25 rural women entrepreneurs) in selected areas of Rajshahi and Naogaon districts. Hence, the results may not be representative of the experiences of all the rural women entrepreneurs in Bangladesh. Secondly, the study focused only on the handicraft sector. The digital transformation challenges could be different for other rural entrepreneurship activities like agriculture, food processing, or service businesses. Third, the study used a qualitative descriptive design, so that the results obtained could not be generalized, but only showed the experience and perception of the respondents. Future research can be conducted using mixed-method or quantitative research with larger sample size and covering various regions of Bangladesh to explore the overall trend of digital entrepreneurship among rural women. A comparison of rural women and urban women entrepreneurs can also provide a better understanding of the digital inequality and entrepreneurial capability differences. Further studies might also investigate the effect of specific digital training programmes, institutional support programmes or digital financial inclusion programmes on the sustainability of rural women entrepreneurs.

The digital revolution has opened up fresh avenues for small businesses with digital marketing, digital payment systems and social media. Rural women entrepreneurs in Bangladesh are increasingly experimenting to use digital tools to enhance their market access and business sustainability. But many are dealing with major challenges for effective digital adoption. This study aims to understand the problems of digital transformation of rural women handicraft entrepreneurs in Bangladesh. In-depth semi-structured interviews with 25 rural women entrepreneurs were conducted in selected rural areas with the qualitative descriptive approach. Thematic analysis was used to identify the key barriers to digital adoption. The results indicate that digital participation is hindered by limited digital literacy, poor access to technology, poor online marketing skills, and low digital financial knowledge. Also, digital transformation is impeded by institutional barriers like inadequate training opportunities, lack of financial resources, and low institutional support. The study suggests practical digital training, better internet facilities in rural areas and financial assistance to encourage sustainable digital entrepreneurship among rural women in Bangladesh.

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