

Digital Technologies as Tools of Inclusion – A Study on Women-Owned Very Small Businesses

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Abstract: *The objective of this research is to find how very small business have benefitted from technological development that created the path for digital transformation across the globe. Demonetization and Covid 19 have affected very small businesses globally. The target population in this study are very small businesses owned by women or women-owned very small businesses (WOVSBs) and the field of research is the district of North 24 Parganas in West Bengal. The research employs mixed methods to track factors delaying digital adoption. The field visit took place between August 2024 and November 2024. This study finds that very small businesses are affected both by demonetization (2016) and Covid 19 because household income has fallen across the nation. However, the usage of digital payment system has increased due to government initiatives. In spite of cash crunch, adopting digital payment system has helped very small business owners retain customers. The gap between education and digital competency has surfaced, underscoring the fact that digital literacy requires a different aptitude. This study suggests training of women with low education to maximize the advantages of digital payment systems which is a necessity at the moment.*

KeyWords: Digital Literacy, Digital Finance, Digital Payment System, Very Small Businesses

INTRODUCTION

Technological innovations like digital payment system started since developments took place in information and communication technology in the context of financial transactions between customers and businesses (Lie'bana-Cabanillas et. al., 2013). Technology adoption benefits micro-units, but cash transactions are still popular among the aged, married, female and under-educated. Though the pandemic has accelerated the adoption of digital payments, cash remains the 'king in India' as Rs 3,09,827 crore was in circulation in 2022 (Chadha, 2022). The digital divide, between the rural and the urban areas being noticeable, the Pradhan Mantri Gramin Digital Saksharta Abhiyaan (PMGDISHA) was launched to make six crore people digitally literate in rural areas, across states and Union Territories. In 2024, West Bengal had the highest number of women owning MSMEs. The research location in this study is West Bengal which is underdeveloped economically, has high unemployment, and lacks the technological infrastructure needed for digital financial services. This study intends to understand the factors affecting digital literacy/competency needed for technological adoption.

The paper is divided into several sections: Literature Review, Methodology, Results and Data Analysis, and Conclusion.

LITERATURE REVIEW

In 2014, a humongous change like demonetization was implemented by the government with the hope of delivering on the electoral promise of erasing corruption and terrorism in India. This disruption was not enough until Covid-19, which expedited the digital transformation process because physical distance was mandatory. Thus, pandemic led to the increased adoption of digital payment modes in India. According to the government, demonetization policy was implemented to remove fake currency notes. By expanding the digital payment options, such as gpay, phonepe, paytm, and card payments, the risks associated with handling physical currency, such as theft or circulating counterfeit notes, have been mitigated.

In spite of the government's demonetization strategy to push Indian economy towards a cashless economy, majority of the population are not using digital finance in India (Ghosh & Hom Chaudhury. 2020). According to the Impact Assessment Study done by IPA, it is mentioned that digital use growth has happened among the urban population while the rural areas have witnessed a very limited use and adoption of different digital technologies. This lag in the rural population is attributed to the lack of awareness and knowledge about the benefits of various digital tools and applications.

Digital Transformation

Digitalization in India began with e-commerce start-ups. To increase online footprints, entry of the telecom giant, Reliance and increasing penetration of low-cost smartphones played a significant role. Digitalization offers a multitude of benefits like cost efficiencies and financial inclusiveness through registration in government schemes and banks. Digital media encompasses: audio, video, social media, advertising etc. and digital media usage is identified as an indicator of digital literacy or competency in this paper. Among many reasons, low digital literacy is cited to be the biggest challenge for Indian economy.

To face demonetization, public sector banks issued RuPay cards under the Prime Minister Jan Dhan Yojana (PMJDY) scheme. As low digital literacy, poses a barrier to cashless economy, government provides safe and secured environment with incentives to encourage adoption of cashless facilities. Under PMJDY, approximately 21 per cent account holders has turned inoperative by December 2024 (Kumar, 2024), despite the finance ministry's push to speed up the verification process to reduce dependence on cash transactions. The research findings by Ghosh and Chowdhury (2020) confirms that majority of the people are not using digital finance in India.

Digital Infrastructure

In this study, emerging technologies cover digital infrastructure including internet facilities, smartphone, online platforms, Paytm and its speakers. Small businesses require affordable and reliable digital infrastructure, access to customers and customized solutions to cater to their needs (Kosimov, 2023). There is a notable increase in e-payments since demonetization due to shortage of cash and convenience of not carrying cash.

Turning to perceived trust in mobile payment systems, it is expected that increased use in digital finance can lead to more financial inclusion but low-income people do not trust banking services. Once their trust is built, using digital payments can improve their daily business operations, and they may start using digital financial services and recommend it to consumers and others.

Digital Financial Services (DFS) include financial services offered and accessed via digital technology. It includes online banking – payments and savings. Digital channels refer to the internet, mobile phones, smartphones, ATMs and other digital systems (Abbasi & Weigand, 2017). Studies suggest that digital technologies play a significant role during crisis for informal micro sized businesses. During COVID-19, many 'micro-informal' businesses adopted digital payment platforms even when digital literacy is a challenge.

Digital Literacy

The definition of digital literacy varies across regions and decades as there is no consensus in the description, so for suitability, the investigator has used the definition of digital literacy as locating, consuming, and communicating digital content. The National Digital Literacy Mission defines digital literacy as the ability of individuals and communities to understand and use digital technologies for meaningful actions (Bhattacharya, 2024). But this does not give the details to measure digital literacy because "meaningful actions" mean different to different people.

Most of the existing literature primarily focuses on specific demographics, such as students or professionals who require high levels of digital literacy. However, the government started its 'The Digital Saksharta Abhiyan (DISHA)' or 'National Digital Literacy Mission (NDLM) Scheme' to impart IT training to 52.5 lakh people spanning across government sectors and projects such as Anganwadi and ASHA workers, authorized ration dealers so that the non-IT literate citizens are trained to become IT literate to participate in the developmental process for better opportunities.

Web 2.0 tools are social, and easy to use and enable users to communicate digital content using cellphones conveniently and immediately for any kind of communication (Spires, et.al, (2019). According to data from 2023, only 29 per cent of women in India are digitally literate, compared to 59 per cent of men. Similarly, only 30 per cent of adults over the age of 50 are digitally literate, compared to 60 per cent of adults aged 18-29.

Digital Competency

The Digital Competency framework used here has originally been proposed by the European Commission in 2013 and is widely used for research on digital competence and developing digital competences in Europe (Schwarz et al, 2024). According to Digital Competence Reference Model there are five areas of digital competence: gathering information, communicating through digital technologies, integrating information while understanding copyright issues, understanding safety issues, and using digital tools for innovation (Fonseca & Picoto, 2020).

During the preliminary visits, the investigator realized that the WOVSBs only fit the first competency area. Social media is a significant part of business nowadays and millions of people use social media for communication and other purposes (David et al, 2018). Using social networking sites like Facebook, Twitter, and Instagram for business has become quite popular but these sites require users to understand and manipulate information in multiple formats safely. National Sample Survey Office (NSSO) consider a person to be literate if they are able to read and write a sentence in any language with proper understanding but experience says digital literacy includes the ability to safely navigate the pages and links according to the onscreen instructions.

Studies have also shown that there are awareness gaps among women entrepreneurs in terms of financial knowledge, business skills and technological challenges. Despite several government schemes and policies supporting women entrepreneurship, the awareness is low.

Research Gap

Previous research articles also inform us about the delay in adoption of digital payment and the reasons being trust, awareness and behaviour. There is a notable lack of studies addressing the digital literacy level among low-income individuals and very small business owners (Spires et.al, 2019). However, this is not enough and this study pegs the research on the digital literacy level which is perhaps somewhat influenced by one's own level of education.

METHODOLOGY

The author has used non-probabilistic sampling, as this sampling technique is appropriate when selecting

individuals for the study, depending on certain characteristics, such as, individuals answering the questionnaire ought to be women first and owners or part-owners of the business and should have been conducting business at least for three years.

The size of the businesses is very small and since they are informal in nature, the word micro has been avoided and the sample has been collected from women-owned-very-small businesses (WOVSB). In absence of formal data, and limited resources, the respondents could be reached by snowballing technique in and around South Dum Dum municipality in North 24 Parganas, a district with well connectivity such as metro, railways, road and river. Over three months field visit, more than 100 participants could be reached.

Both primary and secondary data were collected for the completion of the study. The study used literature review, news analysis, surveys and focused group discussions to identify how digital payment system affects small businesses. The secondary sources used are journals, news articles and various reports from Government and non-government websites for data analysis and literature review.

Primary data were collected through survey by visiting and making phone calls and interviewing the female respondents of all the wards with the help of an unstructured questionnaire which is based on the literature review. The questionnaire covered questions related to age, Marital Status, Education, Type of Business, Ability to Use Smartphones and the Frequency of Internet usage and Digital financial services. The field visit took place between August 2024 and November 2024. Wherever outright refusal occurred the investigator visited the field at different times to meet WOVSBS. Care was taken to explain the questionnaire in local language, Bengali, and after receiving informed consent, interviews were conducted. Open-ended questions were used to collect data regarding the respondents' choice of business, family background, their perception about the significance of digital finance in their business. The entire questionnaire was segmented into sections according to the study's variables.

All the collected data are tabulated through MS Office and interpreted using Jamovi, and PSPP to arrive at the final conclusion. The scale to measure digital literacy and competency is based the capacity or ability, a skill (or set of skills) and the ability to operate at functional level. The assumption is that when people have the device or infrastructure, they can use it to consume and produce information in all kinds of settings and roles. Based on the review of literature the following hypotheses are built:

RESULTS AND ANALYSIS

Excel sheet is used to tabulate the data collected from the field. Then the data is imported in PSPP to check for normality of data, test for reliability and non-parametric tests.

Table 1 – Tests of Normality - Shapiro-Wilk Test

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	Digital Infrastructure	Statistic (W)	DF	Sig. (p-value)
Financial Advantage	0	.69	34	0.000000318
	1	.79	24	.00
	2	.64	105	0.0000000000000134
	3	.80	109	0.0000000000073

Interpretation of Tests of Normality

Table 1 presents the results of the Shapiro-Wilk test for normality for the variable “Financial Change After Using Digital Payment System” across different levels of “Digital Infrastructure.” The Shapiro-Wilk test assesses whether a sample comes from a normally distributed population.

For all levels of Digital Infrastructure, the p-values are significantly less than 0.05, indicating that the distribution of financial change after using a digital payment system does not follow a normal distribution. This means that the assumption of normality is violated for all levels of Digital Infrastructure. Given the violation of normality, it is appropriate to consider using non-parametric tests for further analysis, as they do not assume normality in the data distribution.

The Reliability of the Scale

The value for Digital Literacy (**Table 2**) suggests that the items have good internal consistency as it is above 0.8, which is considered good. The value for Digital infrastructure (**Table 2**) suggests the items have excellent internal consistency as it is above 0.9, which is considered excellent.

Table 2: Test of Reliability

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	Digital Literacy	Digital Infrastructure
No of Items	7	6
Cronbach's Alpha	0.89	.94

The data was collected based on the closed ended questionnaire, which covered questions related to digital literacy level and digital infrastructure. The value for both the variables are above 0.7 indicating the scale is reliable. As the data failed the Normality test, non-parametric tests are done to check the hypotheses.

Table 3 presents the Chi-Square test statistics for four different variables: Digital Literacy Level, Financial Change after Using Digital Payment System, Perception of Digital Media's Necessity for Business, and Digital Infrastructure.

Table 3: Interpretation of Chi-Square Test Results

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	Chi sq value	DF	Asymp. Sig. (p-value)	Null Hypothesis, H0	Alternative Hypothesis	Remarks
Digital Literacy Level	28.18	5	.000	The use of digital payment systems does not impact financial change.	The use of digital payment systems impacts financial change.	The p-value <0.05, H0 rejected.
Financial Change after Using Digital Payment System	60.29	3	.000	There is no association between the perception of digital media's necessity and business performance.	There is an association between the perception of digital media's necessity and business performance.	The p-value <0.05, H0 rejected.
Perception of Digital Media as a Necessity	33.53	3	.000	The level of digital infrastructure does not influence business outcomes.	The level of digital infrastructure influences business outcomes.	The p-value <0.05, H0 rejected.
Digital infrastructure	90.32	3	.000	There is no relationship between digital literacy level and business performance.	There is a relationship between digital literacy level and business performance.	The p-value <0.05, H0 rejected.

DISCUSSION

In **Table 3**, for all four variables, the p-value is 0.000, which is less than the typical significance level of 0.05 and indicates that there is a statistically significant association for each variable. The investigator safely rejects the null hypothesis, and accepts the alternative hypotheses (Table 3) and concludes:

- **Digital Literacy Level:** The significant Chi-Square value suggests that there are significant differences in digital literacy levels across the categories examined.
- **Financial Advantage in Using Digital Payment System:** The significant Chi-Square value indicates that the use of digital payment systems has a notable impact on financial change.
- **Perception of Digital Media's Necessity for Business:** The significant Chi-Square value implies that the perception of the necessity of digital media for business varies significantly across different categories.
- **Digital Infrastructure:** The significant Chi-Square value shows that digital infrastructure availability significantly impacts the outcomes measured.

Impact of Education Level on Digital Literacy

Education and access to technology develops confidence to adopt new technologies. The digital payment system was adopted due to the shortage of cash and followed by covid rules. As a result, digital financial services came to be used and which led to financial inclusion. Education plays a significant role in a digital transformation and the correlation between traditional education and digital literacy is presented in **Table 4**.

Table 4: Correlations

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		Digital Literacy	Education Level
Digital Literacy	Pearson Corr.	1	0.62
	Sig. (2-tailed)		0
	N	92	92
Education Value	Pearson Corr.	0.62	1
	Sig. (2-tailed)	0	
	N	92	92

In **Table 4**, the Correlation Coefficients test shows the correlation between Digital Literacy and Education Level: The Pearson correlation coefficient is 0.620, which lies between the range of -1 and 1, where 1 indicates a perfect positive correlation meaning as one variable increases, the other also increases. -1 indicates a perfectly negative correlation which means as one variable increases, the other decreases. 0 indicates that there is no correlation between the variables. A value of 0.620 signifies a moderately strong positive correlation, meaning that as digital literacy increases, the education value tends to increase as well. We have seen that highly educated people are not necessarily digitally competent because of age and little or no exposure to digital technology.

The p-value is 0.000, (**Table 3**), which is less than 0.05 indicating that the correlation is statistically significant, and further suggesting that the observed relationship between digital literacy and education value is unlikely to be due to chance. Each variable correlates perfectly with itself, as indicated by the value 1.000. There is a moderate positive relationship between digital literacy and education value. The correlation is statistically significant.

The types of business that WOVSBS own are seen in the Table below.

Table 5: Businesses			
Valid	Accessories	Frequency	Percent
	Beautician	8	8.70%
	Cigarettes etc	2	2.20%
	Confectionary	3	3.30%
	Cuisine	7	7.60%
	Festival Items	4	4.30%
	Flower seller	3	3.30%
	Fruit seller	1	1.10%
	Garments	17	18.50%
	Grocery	1	1.10%
	Hardware	2	2.20%
	Interior Designing	1	1.10%
	Laundry	2	2.20%
	Medicine	2	2.20%
	Photocopy centre	7	7.60%
	Stationary	14	15.20%
	Tailor	10	10.90%
	Travel and Tourism	1	1.10%
	Tuition	2	2.20%
Total		92	100.00%

Source: Primary data

It is evident from **Table 5** that these are traditional areas of businesses. The highest number of women are concentrated in areas: Stationary items, Garments, Tailoring, Beautician, Photocopy Centre and Cuisine. Photocopy shops are the modern type of business which require operating machines, reading instructions and trouble shooting.

Level of Traditional Education

Table 6: Education Level of Women			
	Education Level	No of VSBOs	%
	Not been to school	2	2%
	Primary	12	13%
	Secondary	24	26%
	Tertiary	54	59%
Total		92	100%

Table 6 shows the percentage of women with varying levels of education. Low levels of literacy reduce safety in the usage of Digital Payment System because they are not able to ensure payment completion without speakers connected to paytm. With high literacy levels one can use social media tools to engage their customers but with low digital literacy the VSBOs depend on other people and are unable to troubleshoot.

Impact of Digital Infrastructure

The technological advancement is happening at a higher rate than consumer awareness and the ability to use the current digital tools and applications are captured through comments made by users, experts, and media on Fintech practice and experiences. **Table 7: Digital Infrastructure** shows that 25 percent women do not own smartphone and digital financial tools while 52 per cent women own smartphones and digital financial tools.

Table 7: Digital Infrastructure			
Valid		Frequency	Percent
	0	23	25.00%
	1	9	9.80%
	2	12	13.00%
	3	48	52.20%
Total		92	100.00%

Any business requires skill, education, tools and capital. The data gathered from the field shows that more than 50 per cent VSBOs have above average digital literacy but when it comes to digital competency around remaining 50 percent women are unable to operate digital payment systems on their own and rely upon family members. Thereby, digital tools and application call for certain amount of expertise.

Impact of Digital Literacy

Table 8: Digital Literacy Level			
	Digital Literacy Level	No. of VSBOs	%
	0-0.9	17	18%
	1-1.9	17	18%
	2-2.9	9	10%
	3-3.9	18	20%
	4.0-5.0	31	34%
Total		92	100%

In **Table 8**, more than 50 percent VSBOs are educated with secondary, graduate or post graduate level of education. It points out to a correlation between the two variables, education level and digital literacy level. Education encourages women to use digital financial services because it gives them the confidence to manage digital money in absence of cash, use cheaper mode of communication such as whatsapp etc. However, the remaining half are unable to utilize digital tools for business use.

Though there are paytm speakers, poor network is a challenge. Apart from network, the battery life and technical problems often put the VSBOs in difficulty. Sometimes they themselves fail to charge the speakers.

The usage of digital devices for social networking via WhatsApp, Facebook, X are relatively higher than that for other usage but these are hardly used or maintained for business purpose by owners of very small businesses. Using digital payment system assures sales and facilitating purchase from customers not carrying cash, so this is a form of customer retention. Earlier, they used to lose customers because they did not use digital financial services like paytm, phonepe, Gpay, and Bhim UPI. However, they are not able to manage these services on their own.

CONCLUSION

Therefore, the factors affecting digital adoption and digital competency are the level of education, illiteracy, limited access to digital infrastructure, high costs of infrastructure, old habits, and perceptions (Kaushal et.al, 2022). The PMGDISHA Scheme provides training to individuals and to groups so that people can operate computers, tablets, smartphones, send and receive e-mails, browse the internet to access Government services or search for information, and undertake digital payments. The financial situation during the lockdowns presented low revenues and WOVSBS looked at digital payments with suspicion. Many WOVSBS had reluctantly adopted digital payment system expecting imposition of fees for their financial transactions (Kumar & Chaubey, 2017).

The government should focus on educating the urban WOVSBS about the advantages and costs of digital systems. The reasons for their concern in integrating digital payment services in their business are: 1) the cost involved to installing it, and 2) the reliability of the mechanism (Ahmed & Sur, 2023). Almost 50 per cent of the workforce in this

study is less educated. They prefer to deal with cash rather than digital money but digital payment system is becoming normal among both consumers and sellers due to cash crunch and ease of use in digital payment.

Digital literacy is dependent on the level and quality of traditional literacy and one cannot fully utilize the benefits of digital tools, applications and platforms if traditional educational level is below primary level of formal education. Therefore, a similar kind of training that of PMDISHA is required for the urban low-income group to bridge the educational gap responsible for adoption of technology. As digital finance depends on the strength of one's digital literacy, there is a need for advocacy on digital literacy initiatives specifically targeting women.

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