# INVESTIGATING THE FACTORS AFFECTING DIGITAL COMPETENCY OF SELF-EMPLOYED WOMEN IN VERY SMALL BUSINESSES IN WEST BENGAL – AN EMPIRICAL STUDY

**Shewli Hira[1*], Sartaj Ahmad[2], Manoj Kumar Tripathi[3]**
[1] Research Scholar, Faculty of Liberal Arts and Humanities, SVSU, Meerut, India
[2] Professor, Faculty of Liberal Arts and Humanities, SVSU, Meerut, India
[3] Associate Professor, Faculty of Liberal Arts and Humanities, SVSU, Meerut, India
*Correspondence: shewlihira@gmail.com

## ABSTRACT

This paper aims to investigate the factors affecting digital competency among women in very small businesses in the context of Digital India programme. Digital literacy combined with traditional literacy is the base for digital competency. In the context of high unemployment scenario, self-employment or entrepreneurship is proposed as a solution. The study location of this empirical research is a suburban area around Kolkata, the capital of West Bengal. The study provides empirical data on the gap between the digital skills of very small business owners and Vikshit Bharat Vision 2047. The sample for this research has been taken from the densest parts of North 24 Parganas where self-employment or very small businesses are thriving with people from the adjoining districts and states of West Bengal. The data was collected from August 2023 to October 2023. The study finds that women owners of very small businesses have completed more than three years in business, can use digital applications only in a limited way with very little confidence due to factors like traditional education and low digital literacy. The study suggests the need for training in digital applications by designated centres for digital use in business.

## KEYWORDS

Digital literacy, Very Small Businesses

## I INTRODUCTION

In 2024, the Indian Government announced its ambitious development plan, Vikshit Bharat 2047, to transform India into a developed nation (Mundhe, 2024). It requires the participation of women, as the latter constitute almost 50 percent of the population. Women Entrepreneur Platform, a government initiative, was launched by the NITI Aayog in 2017 to build business friendly ecology in the country (Jaitly and Thangallapally, 2022). Though the central and state governments have launched multiple programs and schemes to support entrepreneurs and enterprises, but all schemes do not reach the entrepreneurs irrespective of gender.

The MSME report shows West Bengal accounts for 23.42 per cent share in women-owned MSMEs (Verma, 2024). However, the Vikshit Bharat 2047 cannot be reached without female participation as women constitute 48.5 per cent of the population in India (GOI, 2022). This underscores the need for women's participation in

technological advancement and reinventing their entrepreneurship practices to thrive in their chosen business (Hazudin, 2021).

The term 'digital' sounds technical because it suggests 'access and use' but it is primarily a social problem. Though technical properties of digital media are important for access and use – they can be complicated and therefore result in not being able to use (Djik, 2020).)

This study is divided into several sections such as 1. Introduction, 2. A Review of Literature, 3. Methodology, 4. Results and Discussion, 5. Recommendation and Conclusion.

## II A REVIEW OF LITERATURE

The study builds on the theory of diffusion as low digital literacy leads to low digital competency and therefore failing to harness the opportunities offered by digital media to very small businesses to indicate the informal nature of the business that women are mostly involved in.

A Microenterprise is defined as an enterprise having less than five workers which deals primarily with restaurant and retail business and employ mostly women and senior citizens (Vaidya, 2024). Some authors have brought self-employed, micro business, small business under the same umbrella (Hilbert, 2015). In India MSME defines "micro business" in terms of one crore rupees limit in investment in Plant and Machinery or Equipment, and not more than five crore rupees in annual turnover. Hitesh Vaidya, former director, National Institute of Urban Affairs defines street vendors as micro-entrepreneurs at heart, creating jobs (Jakhar and Krishna. 2020). The term "very small businesses" suits the informal sector better as it brings self-employment or family businesses into discussion in this study.

| Table 1: Number of SMES, MicroE and IMicroE | | |
|---|---|---|
| Total Registered Women-owned MSMEs in West Bengal | Total Registered Micro Enterprises (Micro) in West Bengal | Total Informal Micro Enterprises (IMicroE) in West Bengal |
| 169,160 | 165,798 | 1,810,520 |

Source: Press Release: Press Information Bureau (PIB)

Against the national agenda of digital India programme, the emphasis is on registering businesses. In West Bengal, digital divide points out to the gap between adoption of digital technology and the digital competency among the citizens. Digital divide is defined as 'an inequality in the access to, use, and impact of digital information and communication technology (ICT) among social agents (Djik, 2020). This inequality is termed as 'social inequality' as it revolves around the attributes, 'who' gets to use, 'what' (Djik, 2020) to exploit ICT and the quality of ICT. The economic status of ordinary women needs improvement because they lack proper education and access to other educational aid facilities required for getting jobs and in becoming independent (Jakhar and Krishna, 2020).

The West Bengal government initiated several schemes to enable a girl child to remain in school and to prevent child marriage. The most popular policy for women, 'Lakshmir Bhandar' Scheme, was launched in February 2021, to provide financial assistance to women from economically weaker sections of society. The other schemes in the state are presented in Table 2:

| Table 2: West Bengal Government Schemes for Business Development | | |
|---|---|---|
| 1 | West Bengal Artisans Financial Benefit Scheme: | Support for Digital Marketing (2024) |
| 2 | Artisans Financial Benefit Scheme | The objective of the scheme is to provide systematic financial support for tools, equipment, Workshed and other fixed assets to a group of at least 10 artisans coming under an industrial |

| | | |
|---|---|---|
| | | cooperative                                                                    society.<br>**₹3,00,0000/-** for                                               tools/equipment.<br>**₹7,00,0000/-** for Work Shed and other fixed assets.<br>*Source:*<br>https://financialbenefitartisan.wb.gov.in/portal/home.html |
| 3. | Karmashree | It is a combination of several other schemes under the Labour department. The government would train 10 lakh youths for skill development, through 500 Karma Tirtha marketing hubs, where poor people would get shops free of cost, that were being set up in the state. |
| 4. | 'Karmatirtha' | A one-stop shop allowing entrepreneurs to market their products directly to buyers.<br>Under the scheme, the state government has set a target of providing loans to one lakh youths every year.<br>i. Each beneficiary can avail of a loan of up to ₹2,00,000/- under the scheme. Apart from loans<br>ii. The state government will also provide subsidies for taking up new projects. |
| 5. | Yuvasree Prakalpa | The objective of the scheme is to provide unemployment assistance to the enrolled jobseekers of the Employment Bank to enable them to upgrade their level of skill in order to make them employable or suitable for setting up of self-employment ventures<br>i. Subject to fulfillment of the aforesaid eligibility criteria an individual may receive unemployment assistance under the scheme ₹ 1500/- per month. |
| 5. | Banglashree for Micro, Small and Medium Enterprises | Subsidy for State Goods and Services Tax (SGST). |
| *Source: https://wb.gov.in/government-schemes.aspx* | | |

Though the government provides help in creating self-employment opportunities, access to entrepreneurial opportunities is determined by contextual factors such as social structures, family background and organized life (Brush and Hisrich, 2009). Studies have shown that married women often view entrepreneurship as a pathway to economic independence, flexibility in managing work-life balance, and fulfilment of personal aspirations (Lombard, 2001). When starting a business, women entrepreneurs may meet unexpected or fierce competition, delayed customer payments' and fall in purchase due to job loss (Ogundana, 2021).

## 2.1. Theoretical Framework

### Digital Literacy, Digital Infrastructure and Digital Divide

The terms digital literacy, digital infrastructure and digital divide are interconnected and affect each other. Apart from low digital literacy level, low internet connectivity and high cost of data has created digital inaccessibility which leads to 'digital divide' (Djik, 2020).

Digital divide indicates a social split between people in a divided society as the question arises pertaining to inclusion in or exclusion from society due to personal motivation, physical access to devices and usage opportunities (Djik, 2020). For example, if the citizens are not able to register themselves on the government websites, they are likely to suffer from delays and consequent exclusions from the government services. Digital literacy is essential for users to benefit from state-provided schemes that require enrolment on websites such as https://voters.eci.gov.in/, https://swasthyasathi.gov.in/, https://udyamregistration.gov.in and so on.

Digital Literacy requires a range of skills to be able to use technology to search for, create content, solve problems, to connect and communicate online, discover, share new information, recognise risk, and stay safe (Blue, 2022). Though digital technology adoption in small businesses has happened, but the sector has witnessed mixed results (Sahin, 2006). To make the best out of technology, quality education is important, and it has already been proven that digital literacy significantly and positively impact digital business transformation (Sahin, 2006). The human capital theory emphasizes the role of education, skills, and knowledge in enhancing productivity and outcomes (Nadezhina and Avduevskaya, 2023).). Digital literacy and awareness can be seen as forms of human capital that empower individuals and businesses to perform better.

Roger's diffusion of innovation theory (Sahin, 2006) explains how new ideas, behaviours, or technologies spread within a population. It categorises adopters into different groups based on their readiness and ability to adopt innovations: innovators, early adopters, early majority, late majority, and laggards. Technology Acceptance Model (TAM) (Davis, 1985) explains how users come to accept and use technology based on two key factors: Perceived Usefulness and Perceived Ease of Use. These factors have been used to build a parameter to measure digital competency. The details are provided in **Table 7** in Notes section.

Authors also suggest that in developing countries in order to reap the full potential and benefits of Information and Communication Technology (ICT), attainment of skills is required for individuals so that they can actively participate in using newer technologies which require digital literacy (Sordi et al, 2024).

### 2.2 Hypothesis Formation

From the literature review, we find Education has been cited as the reason for successful use of digital tools, applications and media for business and training is needed for better use of the digital content, tools and applications. The association between the variables have to be tested and we have arrived at the following hypotheses:

1) Education does not impact digital literacy
2) Basic navigational skills do not contribute to digital competency

## III METHODOLOGY

This study was conducted in 'North 24 Parganas, which has higher rates of urban female literacy because of higher level of urbanization' in the area (Sordi et al, 2024). Very small business owners dot the business map in Kolkata and its surrounding districts which have the infrastructure needed for small businesses in terms of high-density population, proximity to railways, and road transport facilities along with a steady power and water supply in the area. By 'very small businesses' we understand businesses run and managed by owner or with the help of one or few people.

### 3.1 Sampling and Analysis

To investigate the impact of digital culture on businesses, a mixed-methods approach was employed, combining quantitative analysis with qualitative inquiry. in business in the area, followed by semi-structured interviews with a subset of participants. In absence of formal data, a sample size of 387 was calculated based on the previous census data. Slovin's formula was applied. The data was collected from August 2023 to October 2023. However, this report is based on the pilot study consisting of 92 samples.

Qualitative data has been collected through semi-structured interviews with more than 30 women owning very small businesses. These interviews covered the extent of digital use in business among women in small businesses.

Quantitative data has been collected through a structured questionnaire distributed to a larger sample of women entrepreneurs with closed ended questions. The questionnaire captured demographic information, and the variables digital infrastructure, digital literacy, and education to measure digital competency.

A Kruskal Wallis test is done because the data did not fit the normality test. **Table 3** presents the **rankings** derived from a **non-parametric test** (the **Kruskal-Wallis test**) for three variables: **Internet for Information/Entertainment**, **Digital Awareness**, and **Digital Literacy** against the level of traditional education.

Table 3: Patterns Identified through Kruskal Wallis Test

| Patterns Identified through Kruskal Wallis Test | | | | |
|---|---|---|---|---|
| **Variables** | **Levels** | **N** | **Mean Rank** | **Comments** |
| Internet_for_information_for_entertainment | 0 | 1 | 14.5 | Mean ranks increase from **14.50** (Level 0) to **57.94** (Level 3). Indicates a trend where higher levels correspond to higher mean ranks. |
| | 1 | 13 | 21.58 | |
| | 2 | 24 | 35.58 | |
| | 3 | 54 | 57.94 | |
| | Total | 92 | | |
| Digital_Awareness | 0 | 1 | 11.5 | Mean ranks increase from **11.50** (Level 0) to **58.87** (Level 3) – It suggests higher digital awareness is associated with higher ranks. |
| | 1 | 13 | 15.77 | |
| | 2 | 24 | 36.77 | |
| | 3 | 54 | 58.87 | |
| | Total | 92 | | |
| Digital_Literacy | 0 | 1 | 6.5 | Mean ranks increase from **6.50** (Level 0) to **59.32** (Level 3) – It suggests strong upward trend, showing a clear relationship between digital literacy levels and rank outcomes. |
| | 1 | 13 | 16.12 | |
| | 2 | 24 | 35.77 | |
| | 3 | 54 | 59.32 | |
| | Total | 92 | | |
| *Source: Primary Data* | | | | |

## 3.2 Role of Digital Literacy

The increasing mean ranks across levels of Internet for Information/Entertainment, Digital Awareness, and Digital Literacy suggest a progression in adoption behaviour. Levels (0, 1, 2, 3) represent stages of traditional education or readiness to leverage digital tools for business purposes. The progression of mean ranks in Digital Literacy demonstrates the value of investing in digital skills development. Significant differences between levels suggest that higher investments in these capabilities translate into measurable benefits, supporting the human capital perspective.

**Table 4** presents the test statistics for the Kruskal-Wallis test, conducted on three variables: Internet for Information/Entertainment, Digital Awareness, and Digital Literacy.

Table 4: Test Statistics

| Test Statistics | | | | |
|---|---|---|---|---|
| **Variables** | **Chi-Square** | **df** | **Asymp. Sig.** | **Remark** |
| Internet_for_information_for_entertainment | 42.02 | 3 | 0.000 | The p<0.05, across the four levels (0, 1, 2, 3). |
| Digital_Awareness | 34.77 | 3 | 0.000 | |
| Digital_Literacy | 35.83 | 3 | 0.000 | |
| *Source: Primary data* | | | | |

### 3.3. Role of Higher Levels of Digital Literacy

The significant differences (p=0.000) highlight that higher levels of digital literacy or awareness are associated with better outcomes. The test statistics for Digital Literacy and Digital Awareness show significant differences across levels, indicating that businesses or individuals with higher digital capabilities (ease of use) and awareness (usefulness) perform better. The results align with TAM's premise that increased familiarity with and perceived value of digital tools lead to more effective adoption and utilisation.

## IV RESULTS AND DISCUSSION

The statistical analysis has been done using excel and PSPP to understand patterns and trends and relations among the variables such as 'types of businesses,' 'digital literacy', 'education level', and 'digital infrastructure'.

### 4.1 Types of Business

The type of businesses operated by women in the current city are grocery, garments, accessories, food and beverage, tailoring, personal grooming services and so on. These businesses require low levels of capital, are informal in nature, are likely to be set up at home or nearby places from home, caters to local communities and "may require fewer work hours so that they can take care of the family too" (Park, 2017).

These businesses may create self-employment opportunities but rarely employ more than two to three people. Very small businesses emerge from necessity and not as an entrepreneurial venture because all the participants in the study are under the pressure of footing the bills for rent and managing homes.

The highest number of women are engaged in garments followed by stationary shops because it requires low investment, non-perishable items but entails higher profit. The current area of study brings to us businesses where women were unseen before, for example, photocopy and interior designing.

Table 6: Types of Business

| Types of Business | | | | | |
|---|---|---|---|---|---|
| Types | Frequency | Percent | Types | Frequency | Percent |
| Accessories | 5 | 5.40% | Hardware | 2 | 2.20% |
| Beautician | 8 | 8.70% | Interior Designing | 1 | 1.10% |
| Photocopy centre | 7 | 7.60% | Laundry | 2 | 2.20% |
| | | | Medicine | 2 | 2.20% |
| Cuisine | 7 | 7.60% | Fruit seller | 1 | 1.10% |
| | | | Grocery | 1 | 1.10% |
| Stationary | 14 | 15.20% | Travel and Tourism | 1 | 1.10% |
| Garments | 17 | 18.50% | Tuition | 2 | 2.20% |
| Tailor | 10 | 10.90% | Cigarettes etc | 2 | 2.20% |
| **Total** | **68** | | Confectionary | 3 | 3.30% |
| | | | Flower seller | 3 | 3.30% |
| | | | Festival Items | 4 | 4.30% |
| | | | **Total** | **24** | |
| Total – 92 | | | | | |
| ***Source: Primary Data*** | | | | | |

### 4.2. Role of Demography and Education for Digital Transformation

The study surveyed 92 women entrepreneurs, and the age of the participants range from 20 to 59 years. As per **Table 5**, most of the women entrepreneurs (around 88 per cent) are married including separated, divorcees and widows (granular data not added), while 12 per cent are never married or Single.

Table 5: Comprehensive Data

| Comprehensive Data | | |
|---|---|---|
| **Items of Measurement** | **Yes** | **No** |
| Women's awareness of Government schemes for business | 17 (18%) | 75 (82%) |
| Digital literacy level sufficient for safe business | 49 (53% | 43 (47%) |
| Marital Status (Married/Single) | 81 (88%) | 11 (12%) |
| Education level of women (Graduates and above) | 51 (55%) | 41 (45%) |
| Engages in online business | 37 (40%) | 55 (60%) |
| Owns Digital Payment Systems | 68 (74%) | 24 (26%) |
| Uses social media for business | 26 (28%) | 66 (72%) |
| Handles digital payment systems on their own | 5 (5%) | 87 (95%) |
| *Source: Primary Data* | | |

From **Table 5,** it is obvious that almost all are literate and educated. Around 55 per cent women are graduate and above, and around 45 per cent women constitute education achieved across elementary and secondary level.

## 4.3. Digital Tools and Infrastructure Use

**Table 5** shows that many women do not use social media tools and applications for business and approximately 57 per cent women do not use social media for business. Regarding owning digital payment system, they expressed that they were forced to keep them because customers refused to pay in cash.

More than 60 per cent women owns digital payment devices and applications. 87 women out of 92 participants, 95 per cent, depended on their children and spouses for handling online payments. Though they had Phonepe, they insist on the customer to pay in cash. They largely bank on voice confirmation of online payment. Their distrust in using online payment system like Phonepe, gpay etc and not integrating digital applications in their sales strategy explains low level of digital safety awareness. More than 60 women, 65 per cent, did not sell anything online. Their websites only have information about their location and contact number. However, more than 50 women entrepreneurs, 54 per cent, purchased something online with the help of their family members.

With elementary education one can just operate devices with Voice box facility like phonepe. In case of sending messages, they use voice input in smartphone as they are unable to type the words without the required language font. Low-level education does not help them type sentences for meaningful conversation or troubleshoot if there is a network issue or a payment failure.

Apart from low digital literacy, weak connectivity disables women from presenting their products on Facebook 'live' show on e-platforms which is managed by highly educated digital savvy women. For example, Being Gorgeous (Empower), and BelleTales, to name a few, are very popular among women in Facebook for showcasing and advertising products. They claim to have thousands of subscribers.

## 4.3. Level of Digital Literacy in Creating Digital Divide

In **Table 6,** Digital literacy level has been measured around various levels. 49 per cent women have less than required level of digital literacy to function independently in a digital environment for the purpose of business.

Table 6: Digital Literacy Level Score

| Digital Literacy Level Score | | | |
|---|---|---|---|
| **Digital Literacy Level** | **Score** | **No. of Person** | **Per cent** |
| Low | 0-1 | 33 | **36%** 49% |
| Basic | 2 | 4 | **4%** |
| Medium | 3 | 8 | **9%** |
| High | 4 | 21 | 23% |
| Expert | 5 | 26 | 28% |
| *Source: Primary Data* | | | |

**Table 4** also supported the view that a high digital literacy is required to play an active role independently in a digital environment. Women with high digital literacy level use Facebook to post pictures and, WhatsApp to make voice calls and voice messages but do not use it for business to use it as a shelf for product display. When they type messages, they use a mix of digits and alphabets in English which does not make any sense to a non-Bengali and vice versa. Women's low digital literacy level hinders one from making electronic transaction on their own or download and fill in online forms. During the field survey, the author noticed, women buyers above the age of fifty could not scan the code for payment and women sellers called up their family members to verify payment. Mostly, women with secondary level education use voice messages and are unable to spot errors in the message and correct it accordingly.

Almost half the women in this study are unable to access the knowledge available online and build business networks online because their knowledge of smartphones is restricted to functional level and voice messages only or in other words, low digital literacy skills (Anthonysamy, 2020). So, the digital skills needed in business are more advanced than just being able to read, write and sign non digital materials.

## 4.4. Pattern of Internet Usage for Digital Awareness, and Digital Literacy

**Table 3** showed the increasing mean ranks across levels (0 → 3) for all three variables indicate that higher levels of Internet use, Digital Awareness, and Digital Literacy are associated with better outcomes such as customer retention and cash crisis management (the after match of demonetization). The Kruskal-Wallis test confirms these differences are statistically significant ($p<0.05$). For all the three variables, the p-values are below the significance threshold ($p<0.05$), meaning there are statistically significant differences between the groups (levels 0, 1, 2, and 3). The **Chi-Square values** show the relative strength of these differences:

- **Internet for Information/Entertainment** has the largest Chi-Square value (42.02), suggesting the most pronounced differences among its levels.

- **Digital Literacy** (35.83) and **Digital Awareness** (34.77) also show strong differences but slightly less pronounced than Internet usage.

## V RECOMMENDATIONS AND CONCLUSION

Effective steps are needed for skill development among women (Jakhar & Krishna, 2020) as traditional education has not been able to respond to the industry needs of creativity. As digital applications keep improving, 'training in using new features in digital tools, applications, and platforms' (Raharjo, 2024) is the need of the hour. So, we can see that low educational level does not contribute to higher digital literacy skills to complete tasks that ensure better business management.

Digital divide happens not only due to lack of knowledge, and paucity of time, but also because of behavioural trait such as belief and unwillingness to learn (Monteiro and Leite, 2020). The women in very small VSBs with physical outlets showed very little interest in digital payment system, or owning websites, or using digital media for their business. There is a need to bridge the digital divide by providing training on technology tools to access online platforms. So, we can safely conclude that Digital Competency cannot be reached by mere navigational skills for using smartphones for entertainment.

A small business development program might: a) Run workshops where early adopters present their success stories. b) Provide free trials of e-commerce tools, coupled with tutorials. c) Tie digital literacy program certificates with loans and schemes. d) Create networks and platforms where women businesses owners can share knowledge and resources (Yessoufou et. al. 2021)

According to PWC, (2022) technology developers also have the challenge to improve the technology for people with low literacy and simplify further as there is an increasing need of voice technology in everyday life. The challenges in maintaining accounts in Facebook corroborates the fact that digital competency is another business area as developing content and promoting pages require language skills, SEO skills, and knowledge in marketing which can be outsourced to other agencies, thereby, opening opportunities for employment.

**NOTES**

| Table 7: Description of Digital Literacy Level | |
|---|---|
| **Low level** | Start a device, receive calls |
| **Basic level** | Read messages, receive, and make calls, and identify a few contacts, scroll reels |
| **Medium level** | Locate, and manage digital contacts and content, make video calls, search youtube for entertainment, take selfies |
| **High level** | Communicate with others through smart phones, send SMSs, search, and save information, make and edit videos, set up digital payment system |
| **Expert level** | Create, edit, and share digital content, download and fill in digital forms safely, troubleshoot whenever required |
| Adapted after Literature Review | |

## LIMITATIONS OF THE STUDY

This study is a part of bigger study which is going to have more data to test the variables.

## ORIGINALITY AND CONFLICT OF INTEREST

This work is completely original, and no part has been taken from any other work published or unpublished. The Authors declare that there is no conflict of interest among them.

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## ETHICAL APPROVAL

This study has been done with the prior consent of the respondents.

## DATA AVAILABILITY

Data will be provided only after final submission of the thesis.

## ABBREVIATION

MSME – Micro, Small and Medium Enterprises
TAM – Technology Acceptance Model
ICT – Information and Communication Technology
NITI - National Institution for Transforming India

## AUTHOR CONTRIBUTIONS

The author is responsible for the conception, writing and revision of this article.

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