



Digital divide and empowerment of farm women

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Abstract

This paper delves into the intricate nexus between the digital divide and the empowerment of farm women in rural India, elucidating the often-overlooked contributions of these women to agriculture. Despite their pivotal role, entrenched patriarchal norms and limited access to resources hinder their economic agency. The United Nations Food and Agriculture Organization under-scores the potential 20–30% global farm yield increases with gender-equitable resource access. The Indian government's "Digital India" initiative aims to bridge this gap, yet its success pivots on empowering farm women digitally. The paper navigates the challenges posed by the digital divide—ranging from inadequate internet connectivity to high technological costs—identifying them as barriers to farm women's participation in the digital landscape. Strategies for empowerment, such as enhancing internet connectivity, providing digital literacy, and developing agricultural applications, are expounded. Drawing on studies from Nigeria and India, the impact of the digital divide on farm women's economic activities and decision-making is scrutinized. The abstract underscores the imperative of targeted collaborative efforts to surmount the digital gap, crucial for propelling sustainable and inclusive rural development and realizing gender equality in agriculture.

Keywords: Agricultural applications, Digital divide, Digital empowerment, Digital literacy, Farm women, Gender equality, Inclusive growth, Rural development.

Introduction

In rural India, women are essential to all economic activities, including agriculture,

whose day begins prior to sunrise and lasts past sunset. These are India's female farmers, whose views are frequently ignored because of their gender and who

battle to define their identity at the grassroots level due to patriarchal traditions and gender socialization. Women have made important contributions to agriculture not just in India but all throughout the world. According to the UN's Food and Agriculture Organization, women might improve farm yields by 20–30% if they had equal access to productive resources as men. This might increase agricultural output globally in poor nations by up to 4%, which would result in a 12–17% decrease in the number of hungry people worldwide, or between 100–150 million people.

In order to mainstream agricultural women and give them direct access to information about better agricultural practices, an inclusive strategy is required from policy to implementation. Without empowering people who are living on India's last frontier, the empowerment of Indian women will fall short.

ICTs and their growth are considered to aid societies and countries in establishing a solid and sustainable production capacity and a respectable standard of living, both of which are essential for the country's economic success. Because of its profound impact on global economic growth and jobs, digitization has established itself as a game-changer. The government of India has launched a flagship program called "Digital India" in order to transform the nation into a knowledge economy and digitally empowered society by utilizing various e-governance initiatives in order to ensure the bridging of the digital divide and the promotion of inclusive growth. This is done in recognition of its prominent status in this highly competitive world and the larger positive impact that it can have on the Indian economy and its population. With a focus on the three pillars of safe and secure digital

infrastructure, digital service delivery, and citizen digital literacy, Digital India intends to make all citizens able to access government services online through improved online infrastructure and increased internet connectivity. The "Digital India Programme" places a lot of emphasis on the empowerment of citizens through the development of digital competence, but the program's goals can only be achieved once farm women are proficient in the many facets of the digital world.

It is past time to make a concerted effort to foster an environment that will empower women farmers at the grassroots level by giving them access to technical and financial information about agriculture as well as a well-established identity. They require immediate access to data on enhanced agriculture techniques and connections to markets. In the current digital age, it's also crucial to consider the information and communication tools that can enable female farmers to access marketplaces, which are typically seen as being dominated by men and may not be accessible to them physically. A true social and cultural barrier is emerging due to a lack of access to such technology and a reluctance or inability to interact with this kind of communication, which is potentially just as significant as the incapacity to read and write.

The digital divide is a term that refers to the gap between those who have access to digital technologies and those who do not. This gap exists not only in terms of access to digital devices but also in terms of the skills and knowledge required to use these devices effectively. The digital divide has significant implications for various populations, and one group that is particularly affected by it is farm women.

Farm women face unique challenges in accessing and using digital technologies. In many rural areas, internet connectivity is limited or non-existent, making it difficult for farm women to access information and services online. Even when internet access is available, farm women may lack the skills and knowledge necessary to use digital technologies effectively. Additionally, the cost of digital devices and services may be prohibitively high for many farm women.

The digital divide has significant implications for farm women's economic and social well-being. Access to digital technologies can enable farm women to access markets, find information on crop prices and weather patterns, and connect with other farmers and agricultural experts. Without access to these technologies, farm women may be at a disadvantage in the marketplace and may be unable to access critical information and resources.

The digital divide in Indian society

Due to the rapid development and distribution of digital media over the last two decades, access to this medium has become crucial to being an active player in our contemporary society. In most developed countries, computers and mobile phones have become indispensable to how people communicate, work, and learn. It is a well-known fact that digitalization has had an intense impact on society and has also influenced the lives of people immensely. In India, the benefits of digitalization have apparently been seen in every corner of society, generating great change in society. However, it is also a reality that the unequal access to information and communication technologies has led to a massive digital divide in society. The perceived divide between those who have access to the most recent information technologies and those

who do not is discussed. According to research, there are numerous elements along racial, economic, ethnic, and educational lines that contribute to this digital gap. Ownership and access do not always correlate to users of the technology because many people with access are not proficient users or are unable to get information efficiently.

Concepts of empowerment and digital empowerment

Empowerment is described as "the process of gaining mastery over one's self and one's environment in order to fulfill human needs," with a focus on people's capacity to improve their lives and inspire others. A process of reflection and action can help marginalized groups become more aware of their condition, and they can then take steps to change their reality. "Such empowerment can increase people's capacity for strategic decision-making and give them the tools and know-how to live more fulfilled lives." Empowerment can be achieved through a process of building self-esteem that can come from skill attainment and learning, increasing a sense of worth, and in so doing, helping to enhance social capital. It is a term that describes the different ways in which members of different communities can interact effectively. This can vary from chatting with neighbours or engaging in recreational activities to participating in environmental organizations and political parties. It also allows for the acquisition of new sources of information and support; thus, bridging social capital is considered important for social development. Access to the internet and the development of content production skills open up a plethora of new forms of interaction by enhancing individuals' social capital. It offers chances to communicate with a global audience and, most significantly, gives the previously voiceless and

underprivileged a voice in a public setting in a way that has never been possible to this extent before.

The concept of digital empowerment has been defined by various authors in different ways. In essence, digital empowerment combines the words "digital" with "empowerment." Digital refers to electrical technology that creates, stores, processes, and records data that is represented by words and images that are written in binary code, also known as bits, which is made up of combinations of the digits 0 and 1. While empowerment refers to the various strategies that people from various communities might use to communicate successfully, this can vary from person to person based on socio-economic and political situations.

Empowering farm women through digital technologies

Empowering farm women through digital technologies can involve several strategies. These strategies include:

Improving internet connectivity

Governments and private organizations can work to improve internet connectivity in rural areas, including through the development of wireless networks and the use of satellite technology. Community broadband networks, which provide high-speed internet access to rural communities, can also be developed.

Providing digital literacy training

Farm women may lack the skills and knowledge necessary to use digital technologies effectively. Governments and organizations can provide digital literacy training programs to help farm women develop these skills. These programs can

include basic computer skills training as well as more advanced training on the use of digital technologies for farming and other agricultural activities.

Developing agricultural applications

There are a growing number of agricultural applications available that can provide farm women with access to critical information and resources. Governments and organizations can work to develop and promote these applications, ensuring that they are accessible and relevant to the needs of farm women. These applications can include weather forecasting, crop monitoring, and market information.

Supporting women's groups

Women's groups and organizations can provide a support network for farm women, helping to connect them with other farmers and agricultural experts. These groups can also provide training and support on the use of digital technologies.

The role of digital empowerment in bridging the digital divide

Janssen and Stoyanov (2012) described the digital empowerment of individuals based on their competency to use digital devices and applications. Digital competence involves more than knowing how to use devices and applications; it is intricately connected with skills to communicate using ICT as well as information management skills. Additionally, a balanced attitude towards technology as well as specific knowledge and attitudes about legal and ethical issues, privacy, and security are necessary for the wise and healthy use of ICT. Meanwhile, they generated twelve digital competence areas that describe how much a person is digitally competent in the present ICT

generation. The twelve digital competence areas are summarized in Table 1.

In addition to Table 1, Figure.1 given above illustrates how the various digital competence areas relate. It provides a

schematic representation of the results and reflects the kaleidoscopic nature of the ideas generated by experts, which comprised a mixture of competences, proficiency levels, purposes, technologies, and domains (application areas).

Table 1 Twelve digital competence areas identified by Janssen and Stoyanov (2012).

Digital competence area	Description
1. General knowledge and functional skills	The digitally competent person knows the basics (terminology, navigation, functionality) of digital devices and can use them for elementary purposes.
2. Use in everyday life	The digitally competent person is able to integrate technologies into the activities of everyday life.
3. Specialized and advanced competence for work and creative expression	The digitally competent person is able to use ICT to express his/her creativity and to improve his/her professional performance.
4. Technology mediated communication and collaboration	The digitally competent person is able to connect, share, communicate, and collaborate with others effectively in digital environments.
5. Information processing and management	The digitally competent person uses technology to improve his/her ability to gather, organize, analyze and judge the relevance and purpose of digital information.
6. Privacy and security	The digitally competent person has the capacity to protect personal data and take appropriate security measures.
7. Legal and ethical aspects	The digitally competent person behaves appropriately and in a socially responsible way in digital environments, demonstrating awareness and knowledge of legal and ethical aspects on the use of ICT and digital content.
8. Balanced attitude towards technology	The digitally competent person demonstrates an informed, open-minded, and balanced attitude towards Information Society and digital technology. The digitally competent person is curious, aware of opportunities and new developments, and is comfortable to explore and exploit them.
9. Understanding and awareness of role of ICT in society	The digitally competent person understands the broader context of use and development of information and communication technology.
10. Learning about and with digital technologies	The digitally competent person actively and constantly explores emerging technologies, integrates them in his/her environment and uses them for lifelong learning.
11. Informed decisions on appropriate digital technologies	The digitally competent person is aware of most relevant or common technologies and is able to decide upon the most appropriate technology according to the purpose or need at hand.
12. Seamless use demonstrating self-efficacy	The digitally competent person confidently and creatively applies digital technologies to increase personal and professional effectiveness and efficiency.

It also represents how the various digital competence areas identified through the online consultation can be considered ‘building blocks’, which are not necessarily mutually exclusive. Vertically presented blocks like, for instance, ‘Legal and ethical aspects’ are considered to be relevant across everyday use, more specialized use, and up to decisions regarding the appropriateness of technologies. There is both intra- and inter-block variance in proficiency levels. As one progresses upward from the central blocks, proficiency levels seem to increase. Among the areas of digital

competence, learning about and with technologies, informed decisions on appropriate technologies, and seamless use of technologies exhibit higher proficiency levels. ‘Core’ competences related to digital technology usage in everyday life and at more advanced levels connected to creative expression and/or work are bolstered on the one hand by technology-mediated communication and collaboration competences and competences relating to information processing and management on the other hand.

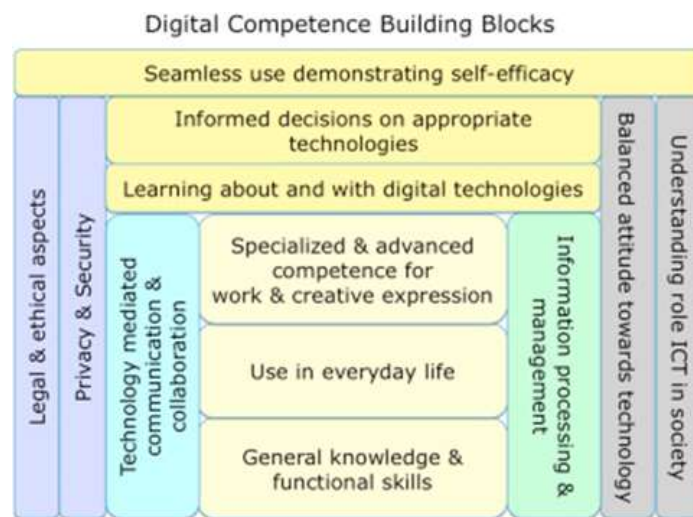


Figure 1 Areas of digital competence: experts’ collective view.
Source: Janssen and Stoyanov (2012)

The above-mentioned digital competence areas involve the basic and direct application of digital technology, which must be substantiated by awareness and skills related to other competences so as to have wider implications for digital technologies. These ‘supplementary’ yet significant competences comprise awareness of legal, ethical, privacy, and security aspects, the ability to act in a judicious manner, and an understanding of

the role of ICT in society while maintaining an equilibrated view towards technology. Ultimately, at a higher level of observation and consolidation, digital competence includes a variety of competences that render a digitally competent person capable of assessing both his or her own digital competences and the digital environment. This level of digital competence assists in better decision-making for self-development and

improvement of one's personal digital environment, which finally culminates in a level of proficiency where the digitally competent person becomes self-efficient in the unhindered and consistent use of digital technologies.

Impact of the digital divide on farm women

The impact of the digital divide on farm women can be significant. Without access to digital technologies, farm women may be unable to access critical information and resources that can help them improve their economic and social well-being. They may also be at a disadvantage in the marketplace, as they may not have access to the same market information as their male counterparts. The digital divide can also perpetuate gender inequalities, as men may have greater access to digital technologies and the opportunities they provide.

Studies have shown that the digital divide has significant implications for farm women. A study by Braimoh (2017) found that women in rural Nigeria were less likely to use the internet than men and that the gender gap in internet use was larger in rural areas than in urban areas. A study by Mukherjee et al. (2019) found that women in rural India faced significant barriers to accessing digital technologies, including lack of awareness, lack of skills, and lack of resources.

Several studies have also explored the impact of digital technologies on farm women's economic and social well-being. A study by Dzisi and Diko (2020) found that women who had access to mobile phones and the internet were more likely to participate in market activities and earn income from their farming activities. Another study by Ezzat and Abdelhady

(2020) found that women in Egypt who had access to digital technologies were more likely to participate in decision-making within their households and communities.

Conclusion

The digital divide is a significant barrier for farm women, limiting their access to critical information and resources that can help them improve their economic and social well-being. However, there are several strategies that can be used to empower farm women through digital technologies, including improving internet connectivity, providing digital literacy training, developing agricultural applications, supporting women's groups, and providing financial assistance. Governments, organizations, and individuals all have a role to play in bridging the digital divide and empowering farm women. It is important that these efforts are focused on the specific needs and experiences of farm women and that they are developed in collaboration with women's groups and organizations. Overall, bridging the digital divide is essential for achieving gender equality in agriculture and rural development. By empowering farm women through digital technologies, we can improve their economic and social well-being, increase their participation in decision-making processes, and promote sustainable and inclusive rural development.

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