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The Utilisation of Information Communication Technology (ICT) for Women Empowerment: A Study in North 24 Pargana District

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ABSTRACT

Purpose: Women in developing countries face barriers in accessing ICT devices like mobile, computer and Internet. Being citizens of developing countries like India, women's ICT access is affected by the socio-cultural aspects and specifically in particular to rural areas. The empowerment level and ICT access pattern are two factors affecting the gender inequality index of the country. The purpose of the study is to explore the access pattern, barriers of ICT usage among women and to analyse the use of ICT by the women for empowerment.

Research Design/ Methodology: This study is based on field study and statistical analysis of collected data. The researcher has used a quantitative approach in this study. The researcher has collected data from surveys among rural and urban women to access their ICT access pattern and empowerment level. The researcher uses the interview schedule method to collect the data from the selected sample size. The quantitative approach is chosen here as the researcher analyses the relationship between the variables and quantification of the variables.

Findings: The study reveals that empowerment level is different in rural and urban areas as the socio-economic situation is different in two places. Rural women don't have much access to ICT tools like the Internet and smartphones, while urban women are developed in this arena. Rural women are economically active, but they mostly belong to lower-income strata. The cultural set up of rural women is also different. Their use of ICT in economic activity is lesser than urban women.

Originality/ Value: India is such a country where women face lots of problem with gender discrimination in a patriarchal society. Gender inequality is more in India and in particular to West Bengal, which is the study area. ICT provides a vast platform and opportunity for women. Keeping this in mind the study explores the role of ICT in women empowerment.

Paper Type: Empirical Research Papers

KEYWORDS Women | Empowerment | ICT | Gender | Rural | Internet

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Introduction

Women's Status and empowerment scenario: An Indian perspective

Empowerment of women has emerged as an essential issue in global society and especially in developing countries. Women are exposed to greater insecurity, to poverty, illiteracy, corruption, unhealthy living conditions, backwardness and male dominance in different areas. They are affected by a lack of opportunities and lack of facilities. A large number of women are uneducated, unemployed, unaware of their rights. This unequal status gives light on the issue of empowerment. Gender inequality and women empowerment is also listed in the Sustainable Development Goals of the United Nations.

The report of the Gender Inequality Index in 2017 reveals that India's position is 127 among all countries. The report focuses on political, educational, economic aspects of gender inequality. Political representation of women is in poor condition in India. Indian women's share of seats in parliament is 11.6% in 2017. The maternal mortality rate is very high in women, 174 deaths per 100,000 live births. There is a vast difference between male and female educational status. Female population at least secondary education (% ages 25 and older) is 39.0 while the male was 63.5 in 2010-2017. Labour force participation rate (% ages 15 and older) is 27.2 for female and 78.8 for male. According to a recent report (2019) of the United Nations Development Programme (UNDP), in the Human Development Index (HDI) India ranks 129 out of 189 countries, and last year it was 130. This report highlighted that a new form of inequality could come with technological development. Status of women is crucial for developing a country like India as in India Women share half of the total population. In the 21st century, access to information communication technology can define empowerment level as the more access to information the more access to development. Information is disseminated with the help of communication technology.

Use of ICT in Women empowerment has attracted the United Nations' attention, and it has been a part of the Sustainable Development Goal of the United Nations over recent years. The Indian Government has put an effort for this purpose. Indian Government initiated a women welfare programme to improve the condition of women in India. Later on, the stress shifted to the development of women. In recent years, international and national bodies' objective emphasised the women empowerment programmes and ICT use in women empowerment. ICT plays a pivotal role in women empowerment as traced by the United Nations and many researchers. Application of ICT has formed a pathway for women empowerment in India. ICT projects in villages have employed an efficient and effective use of ICTs by the women. Many projects have success records in India such as SEWA (Self Employed Women's Association), Dairy Information Service Kiosk (DISK) and Smile.

Information Communication Technology: A Conceptual Pattern

Information communication technology has served as an information facility source for women's empowerment. Information communication technology (ICT) is a broader aspect which traces a pathway from radio in past days to the Internet at present days. ICTs are very dynamic and include different kinds of communication tools. It has played a significant role in developing marginalised groups in society as it has been used for information dissemination on health, education, work opportunities, civil rights etc. The term ICT is used to address a set of technological inventions, used to communicate and gather, process and disseminate information. ICTs are diverse, and its definition is also challenging to identify. According to Kituyu et al. (2008), ICTs can be categorised into two categories: traditional and new. Traditional ICTs include non-electronic media such as print and analogue technologies, i.e., radio, television, fixed-line telephone, and facsimile machine.

In contrast, new ICTs consist of computers and data processing applications accessible through their use (email, Internet, word processing, cellular phone and wireless technologies. ICT is a potential tool for women empowerment and can foster empowerment, providing them knowledge, information and skill. Women can utilise ICTs such as TV, radio, computer, mobile, the Internet for different purposes.

Women Empowerment: Concept

'Empower' means to make one powerful or equip one with the power to face life's challenges to overcome disabilities and inequalities. "Empowerment is an active, multi-dimensional process, which should enable women to realise their identities and powers in all spheres of life. It would provide them with greater access to knowledge and resources, greater autonomy in decision making, greater ability to plan their lives, greater control over the circumstances that influence their lives and freedom from the shackles imposed on them by custom, belief and practice (Alam et. al, 2012)."

ICT and Women Empowerment: Opportunities and Challenges

Women use ICT for information acquisition, to communicate with global society and for economic opportunity. ICTs can merge the communication gap faced by women in every aspect of life. The Internet has created a new avenue for women. Women with different social media platforms can communicate globally. It brings an opportunity for them to share their opinion with global people. It helps them to search for information on education, health and employment. Communication technologies, including interactive video and community radio, have been utilised by organisations for women empowerment in the early 20th century. It can be said that there is a surprisingly positive result

in the empowerment of women. Women have gained social, economic, educational and political development with the use of ICT. With the technological shift, newer technology (ICT) generates space for women free of male dominance and a harsh market. ICT provides a platform for women empowerment, but the women at the grassroots level are not equipped with proper ICT tools and knowledge. Mobile and internet users are low in number at this level. There are factors which affect women empowerment at every level. Women encounter impairment with both learning ICT tools and using ICT tools. Women face barriers in ICT learning for access, skill and time. Low women participation is more due to socio-cultural barriers of society and technophobia. Women with a lack of education and lack of freedom are extensively facing communication gaps.

According to the Internet and Mobile Association of India (IAMAI) report 2019, internet penetration in India is 36% (above 12 years age population). The internet penetration in urban areas is 51%, and in rural areas, it is 27%, which means there is a huge difference in internet penetration between rural and urban areas. Area of living plays a vital role in internet access. The percentage of women internet users is 28 from rural areas and 38 from urban areas. Although urban women are larger in number than rural women, there is a fall in several internet use women. Internet penetration is also different in different states, and the least scoring states are Odisha, Jharkhand, Bihar and West Bengal**.**

Significance of the Study

ICT provides a vast platform and opportunity for women. The main objective of this study is to explore the role of ICT in women empowerment. Women empowerment is one of the agenda of the Sustainable Development Goal of the United Nations. Women are an important issue for gender equality, where the role of information and communication is a significant factor to be studied. India is such a country where women face lots of problem with gender discrimination in a patriarchal society. Gender inequality is more in India and in particular to West Bengal, which is the study area. The rural and urban women's level of empowerment can add knowledge in the discourse of women empowerment.

Review of Literature

Information Communication Technology (ICT) has introduced a new era in communication and development practice. The interrelation between ICT and development of a nation is immense, especially in developing countries. In developing nations, women's empowerment has been a dormant area where ICT has played a crucial role. Over the last two-decade women empowerment has been facilitated by different information communication technologies. ICTs including radio, TV, CD-ROM technology, computer, Internet, telephone, mobile phones, applications, social networking have provided new platforms for women empowerment. Many researchers have studied the role of ICT in women empowerment around the globe. The research trend has gained unique aspects with further information and communication technology like smartphones and the Internet.

An insight into the role of self-help group:

Self-help groups are voluntary associations of people with common interests formed to achieve collective social-economic goals. Different stakeholders, such as NGOs, include self-help groups for ICT initiatives and implementation of those initiatives. The movement of self-help groups plays an important role in empowering women in developing countries. A study by the Centre for Science and Technology for Non- Aligned and Other Developing Countries (NAM S&T Centre) has analysed the role of NGOs in the diffusion of ICT among women and has stated that a project named " Laptop Assisted Adult Literacy Project" achieved the literacy goals for women of the rural area who participated in that program. Village-based centre of Kiosks was one of NGOs' contributions in the expansion of ICT for women's development. Kiosks were used for internet access for rural women. These kiosks could be found in schools, community centres and health centres.

Political Empowerment:

ICTs open up a new platform for the political freedom of women. Naima Hafiz and Ibrahim Dasuki (2018) argued that women used WhatsApp to disseminate their opinions and political views. Besides, Women also used WhatsApp for information on education, health, religion, crime and security. WhatsApp has given female leaders a platform to share information on political issues, projects, and policy. In contrast, the researchers argued that there were cases of blocking while criticising elected representatives. The Internet and social media have spread information networks for everyone. Women acquire knowledge of political affairs from different social networking sites. Information acquisition of political issues can bring change in political perception of women. Especially for the interactive nature of web-based ICTs like social media, women parallelly can give statements on political view, government, political leaders. In the study of Abubakar and Dasuki, they have discussed political freedom. They argue that women used WhatsApp to disseminate their opinions and political views.

Economic facilities:

Economic freedom leads to social and gender equality. ICT platforms have provided an economic opportunity to women. Women have used information search on economic facilities and job opportunities. Digital media, as an ICT tool, can support women in starting a business and expand micro-enterprises. Now a day's different job portals bring job offers in the hands of women. Women entrepreneurs also utilise mobile and Internet in approaching customers.

Nikulin (2016) claimed that the use of mobile and access to the Internet gives a positive influence on the activity of females in the labour market. In a contrary view, the impact of new technologies and globalisation on women's jobs is limited according to some studies. It has failed to generate adequate job opportunities for Indian women. Internet and information technology facilities have provided employment to women's urban elite groups (Shandilya, 2012).

Social Opportunities:

Health and education are two main factors of social upliftment of women. Most of the studies have discussed the social empowerment of women. Education is the core pillar of social empowerment. New ICTs like mobile and Internet serve better facilities on education and health. ICT can facilitate the health condition of women with health education. The use of networked information exchange systems and offline information tools like CD ROMs, databases and mobile ICT devices can enhance public health delivery (Adebiyi,2016). Developed Women's Association (SDWA), a trade union of women workers in India used ICT for health information dissemination to its women members. Women members of SDWA produced an information video on diarrhoea.

Mobile Phone and Internet:

Zaizu et al. (2010) claimed three factors of women empowerment - control over resources (freedom for choice) and agency (self-involvement) and outcome. The results of their research showed that ICT skills create self-esteem, self-awareness and independence for women. The researchers observed that most of the respondents were married and were unemployed. Also, the majority of them could access mobile phones but not the Internet. They used mobile phones only as a tool of communication. The outcome of the research gave insight into women's perceptual change. Balwant Singh Mehta, Nidhi Mehta (2014) explored the attitude of empowerment between women who had access to mobile phones and who had not. The researchers emphasised the impact of mobile phone access on women in rural areas. Nikulin (2016) revealed that smartphones helped in business, online product selling. On the other hand, the study explored that people used mobile phones to make phone calls and take photos and gaming. The study also stated that women in low and middle-income countries didn't prefer to own mobile.

Barriers:

Mobile phones were popular in rural areas among women who were young and middle age and educated. Moreover, education and social background represented a role in determining mobile phone access. The result of the research showed that family income played a crucial role in mobile use. SC/ST and poor women were economically active, and their ownership of mobile phones was higher than others. They had higher autonomy in their financial decision making (Mehta et al., 2014).

Rural women got employment and educational aspects via mobile and Internet, but there were barriers in using mobile phones due to language, cost, and operational problems (Balwant Singh Mehta, Nidhi Mehta, 2014). Savita Bailur et al. (2017) explored mobile ownership and internet access created income generation, but women faced mobile usage challenges. In conceptualising barriers, other aspects were entrepreneurial mindset, mobile for income generation, safety and security, family problems etc.

Conclusion

ICTs have provided a platform for women's empowerment, but empowerment is not visibly observed. Women in developing countries face barriers in accessing ICT devices like mobile, computer and Internet. The barriers are specific for different socio-economic groups. A large number of studies stated that mobile and Internet created social and economic empowerment. In contrast, some studies identified the challenges of mobile and internet access in particular to rural areas. Women empowerment is an integral process which deals with all aspects such as social, political, economic and technological. The technological aspects of women empowerment are very limited in reviewed studies. This study has explored technical access of women and social, political, economic empowerment level, which is not covered as a unit in Indian studies related to Women Empowerment's integrated approach.

Research Problem

Women in developing countries face barriers in accessing ICT devices like mobile, computer and Internet. Being citizens of developing countries like India, women's ICT access is affected by the socio-cultural aspects and specifically in particular to rural areas. The empowerment level and ICT access pattern are two factors affecting the gender inequality index of the country.

Research Design

Operational Definition of Empowerment:

Empowerment is an active, multi-dimensional process, which should enable women to realise their identities and powers in all spheres of life. It would provide them with greater access to knowledge and resources, greater autonomy in decision making, greater ability to plan their lives, greater control over the circumstances that influence their lives and freedom from the shackles imposed on them by custom, belief and practice.

Indicators of Empowerment:

Women empowerment has different indicators; economic, social, political and civic technological. Economic Indicator includes access to financial services: Participation in formal

and informal financial services. Economic Indicators can help us understand the access women have to financial resources, how women participate in household financial decision-making, and more. Social Indicators include mobility/freedom of movement participation in social networks, participation in extra-familial groups, connections to other community members. Educational and Health facilities are included within the area of social empowerment. Educational Indicators can help us measure women's literacy and educational opportunity, perceptions about women's education; and access to education. While these survey questions do not cover all topics related to education, they provide examples of how to capture different aspects of the empowerment process (e.g. access). Health Indicators includes access to health information and resources. Political and Civic Indicator has knowledge and attitudes about political systems, political participation and access to political information.

Capability Approach Framework:

The study of women empowerment is developed in a frame of the capability approach in many studies. Development Reports of the United Nations follow Amartya Sen. Amartya Sen's capability approach focuses on developing human capabilities in his work, and it is known as capability approach. The capability approach is a framework to assess social change and development. It emphasises 'human freedom' which means the adequate opportunities available to individuals to improve their wellbeing (Abubakar et al. 2018). Sen (1999) stated that capabilities are the freedom individuals have to achieve a set of functions (Abubakar et al. 2018). Sen perceives capability as removal of barriers or restriction and access to opportunity.

In 'Development as Freedom', Sen lists five freedoms which have an instrumental role in making substantial freedom. Those freedoms are Political Freedoms, Economic Freedoms, Social Opportunities, Transparency Guarantees, Protective Security. The other part the Sen's capability approach is Conversion factor (Abubakar et al., 2018).

Research Objectives

- To explore the access pattern and barriers of ICT usage among women.
- To analyse the use of ICT by the women for empowerment.

Research Questions

i. What is the access pattern of ICT among women?

ii. How demographic profile of the women is affecting access of ICTs?

iii. What is the level of economic empowerment among urban and rural women?

iv. What is the level of social empowerment among urban and rural women?

v. What is the level of political empowerment among urban and rural women?

vi. What are the barriers faced by women in mobile use?

vii. What is the difference between rural and urban women's utilisation of mobile?

viii. How demographic profile is affecting women empowerment indicators?

Research Method:

The key objective of the research is to analyse the role of information communication technology in women empowerment. This descriptive study is based on field study and statistical analysis of collected data. The researcher has used a quantitative approach in this study. The researcher has collected data from surveys among rural and urban women to access their ICT access pattern and empowerment level. The researcher uses the interview schedule method to collect the data from the selected sample size. The quantitative approach is chosen here as the researcher analysed the relationship between the variables and quantification of the variables.

Research Area:

The research area is North 24 Parganas district, India. This district is in the southern part of West Bengal and the Presidency division. This district has five administrative Subdivisions; Barrackpore, Barasat Sadar, Bongaon, Bidhanangar and Basirhat. The researcher has selected two sub-divisions from the district for data collection. The researcher collected responses from rural and urban women from the selected study area.

Time frame: The time limit for the research was three weeks in October 2019.

Sample size:

In 2011, North Twenty-Four Parganas had a population of 10,009,781 of which male and female were 5,119,389 and 4,890,392 respectively. The researcher has selected a convenience sample size using a probability sampling method. The sample unit is 137 women for this study.

Sample design:

The researcher used a multi-stage cluster sampling method to conduct the study. District of North 24 Parganas (West Bengal) has five administrative Subdivisions; Barrackpore, Barasat Sadar, Bongaon, Bidhanangar and Basirhat.

In the first stage of sampling, the researcher selected two sub-divisions, Barrackpore and Barasat Sadar. In the second stage, two places, Babanpore and Nilaganje have been chosen as rural and urban units of the study from Barrackpore -II.

Two locations, Kanthalia and Bamangachhi, have been selected as rural and urban units from Barasat-I.

Data Collection Tools used:

The researcher has used an interview schedule for data collection. The first part of the interview schedule consisted of questions on personal details of the respondent. The second part of the questionnaire is about information communication technology access nature of the respondents. The third part of the questionnaire is on economic indicators of women empowerment. The fourth part is on social indicators, and the fifth part is on political and civic indicators.

Statistical Analysis:

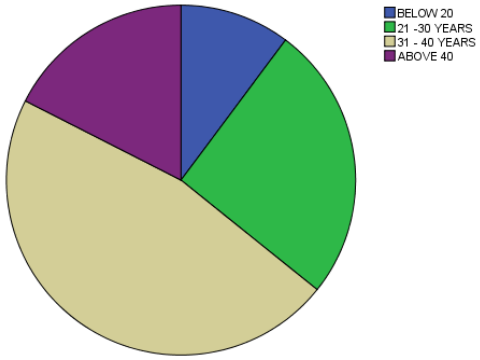
The data is analysed with SPSS software. Frequency distribution and Chi-square test are used to analyse the data.

Data Analysis

Result of data analysis:

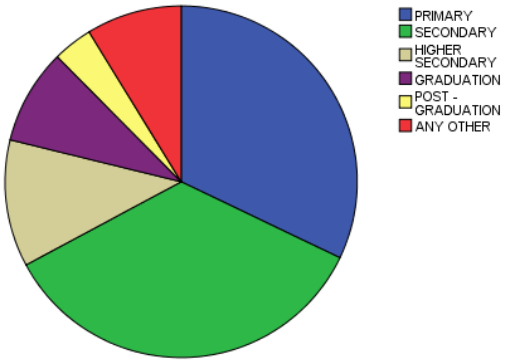
The data is categorised in specific demographic profiles such as age, educational qualification, income status and occupation.

Table 1: Age



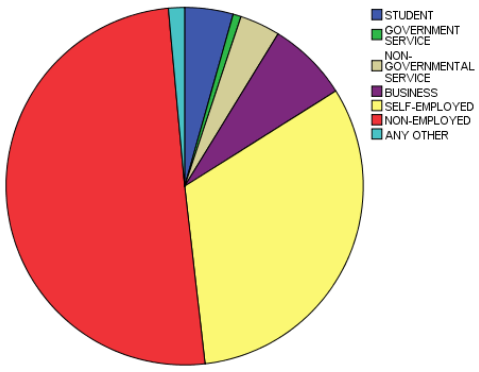
The age limit selected for this study was from 18 to 49 years. The data is distributed in different age categories. 10.2% women are below 20, 25.5% women are 21 to 30 years, 46.7 % of women are 31 to 40 years, and 17.5 % are above 40. This data set is having a majority of middle-aged women.

Table 2: Educational Qualification



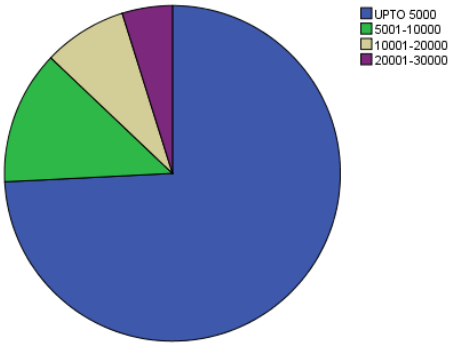
The women's educational qualification is categorised in primary, secondary, higher secondary, graduation, post-graduation, and any other educational qualification. 32.1 % women are with primary education, 35% women are with secondary education, 11.7% women are with higher secondary education, 8.8% women are graduate, 3.6 % women are post-graduate and 8.8% women have other kinds of educational qualification.

Table 3: Occupation



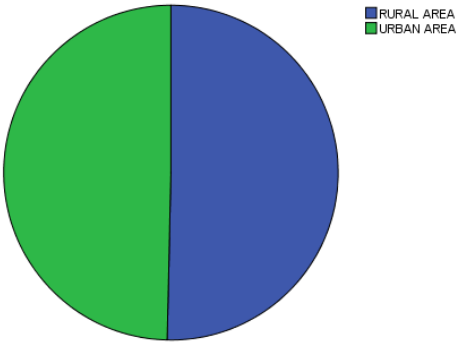
The women's occupation in the data set is 4.4% student, 0.7% in government service, 3.6% in non-government service, 7.3% running their own business, 32.1% self-employed, 50.4 % women are not employed and 1.5% women are in another category. Half of the women in this data set are not employed.

Table 4: Income



This data set's income is 33.6% up to 5000, 12.9% 5001 to 10000, 8.1% 10001 to 20000 and 4.8% 20001 to 30000.

Table 5: Area of Residence

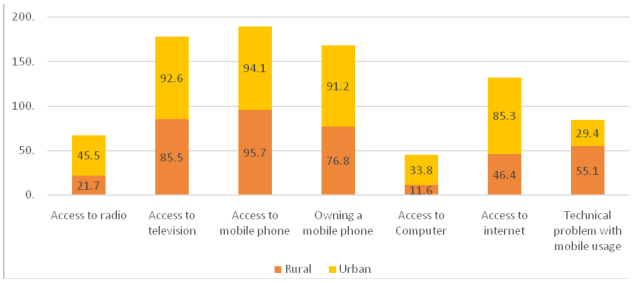


The data is collected from rural and urban both areas. 50.4% of women are from rural areas and 49.6% from urban areas.

Technological Aspects of Women Empowerment

Technological aspects of women empowerment deal with access to different technological devices like radio, television, computer, mobile and Internet. In the 21st century, women's development is related to technical access, and communication technologies provide information. Different information communication technologies have various aspects of information dissemination facilities and to avail those facilities, one should know the use of technologies.

Table 6: Access to ICT

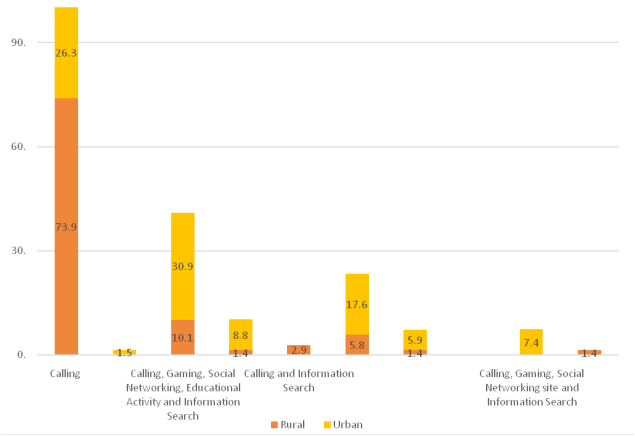


Information Communication Technology is not equally accessible to different groups of people. Education, economic status, socio-cultural setup of the family all define the accessibility pattern of ICTs. In rural areas, 21.7 % of women have radio access, and in urban areas, 45.6 % of women listen to the radio. 85.5% of women from rural areas and 92.6% of women in urban areas watch television. It means television penetration is a little higher than radio penetration in this particular area. In rural and urban, both areas women are more likely to access television.

Mobile is a useful device for everyday life. Different functions of mobile phones have given the ease to our life. 95.7% of women in rural areas have access to mobile phones, and 94.1% of women in urban areas access mobile phones. 76.8% of women own mobile in rural areas and 91.2% women in urban areas. In rural areas, 95.7% of women access mobile, but only 76.8% of women have their mobile. Access to computers is significantly less in both rural and urban areas. Only 11.6% of women access computers from rural areas and 33.8% of women from urban areas.

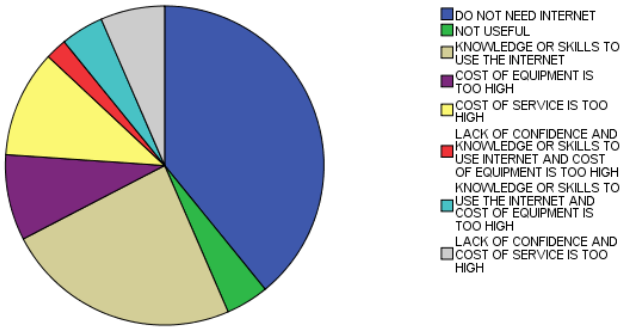
The Internet provides information and access to various facilities, but 46.4% of rural women have access to the Internet. Urban women's access to the Internet is higher than that of rural women. 85.3% of women have an internet connection in urban areas. 53.1% of rural women use the Internet via their handset, and 88.1% of urban women use the Internet in their handset. Women who don't use the Internet face economic status or lack of knowledge and skills. In rural areas, some of the women don't know the use of the Internet. They think it is not useful or they do not need the Internet.

Table 7: Activities in Mobile



Mobile has provided women with calling facilities, gaming, and social networking sites to communicate with people from far off places, educational activities, and information searches. The nature of the activity is different in rural and urban women. More than half of rural women use mobile for calling only the percentage of urban women is 26.3% less than urban women's share who use mobile exclusively for calling. Other activities, such as accessing social networking sites and information search, are less in urban and rural areas.

Table 8: Barriers in internet usage

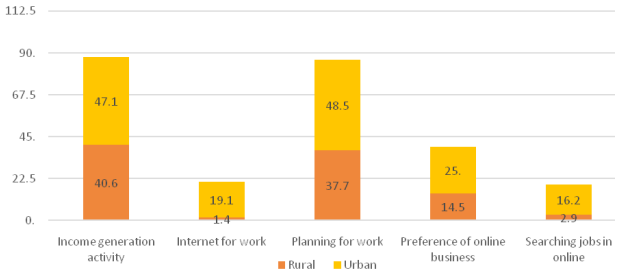


There are barriers associated with technological access to women. Factors like the knowledge and skills of ICT use and women's economic status affect women's use of ICT. The survey has insight into barriers faced by rural and urban women in mobile and internet usage. 55.1 % of women in rural areas and 29.4% of women in urban areas face mobile phones problems. There are different kinds of barriers to internet access. The barriers are knowledge or skills of internet usage, lack of confidence and economic issues.

Economic Aspects of Women Empowerment

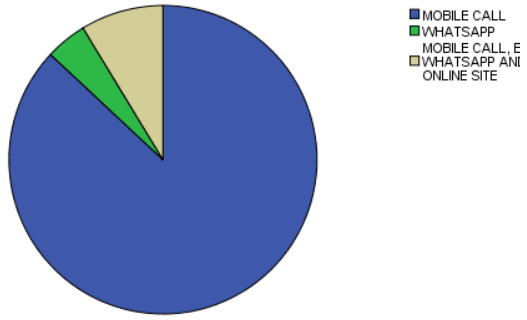
Women's economic empowerment depends on their economic freedom, access to economic facilities. ICT helps women in economic empowerment through mobile and Internet. The Internet has given platforms like online sites, e-commerce, online banking for easy access to money management.

Table 9: Income generation and use of the Internet



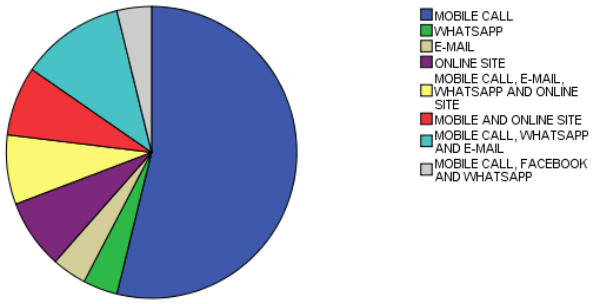
42.0% of rural women and 48.5% urban women are engaged with income generation activity. 37.7% of rural women and 48.5% urban women plan to start a new income generation activity within five years. The Internet has given platforms to women to do work from home through online business. 14.5% of rural women and 25.0% urban women are planning for online business. ICT has given opportunities like SMS service in mobile, mobile calling, email and different online services. All these can help women for their income generation activity.

Table 10: Use of ICT for working activity by rural women



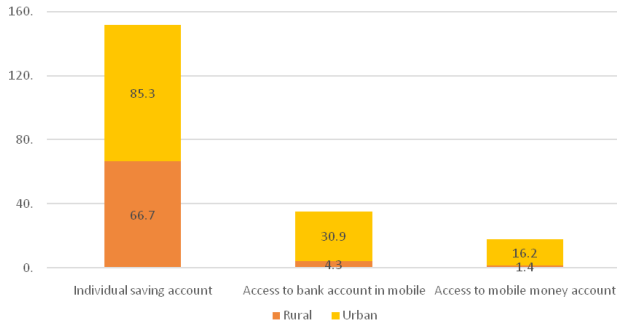
In rural areas, women use mobile calling, WhatsApp, email and online sites for their work. 29.0% of rural women use calling in their mobile for their work. 1.4% of rural women use WhatsApp for their work. 2.9% of rural women use mobile for calling, emailing, accessing online sites and WhatsApp for their work. The total percentage of women who use mobile for working activity is 33.3%. Internet access for a career is significantly less in rural women.

Table 11: Use of ICT for working activity by urban women



In urban areas, 20.6% of women use phone calls for their work. 1.5% of women use WhatsApp for their work. 1.5% of women use email for their work. 2.9% of women use online sites for their work. 2.9% of women use phone calls, email, WhatsApp and online sites all for their work. 2.9% use phone calling and online sites. 4.4% of women use phone calls, WhatsApp and email for their work. 1.5% of women use phone calls, Facebook and WhatsApp for their work. The number of women using ICT for their work is higher in urban areas.

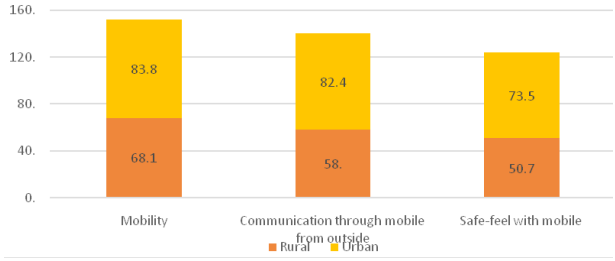
Table 12: Access to economic facilities



Social Aspects of Empowerment

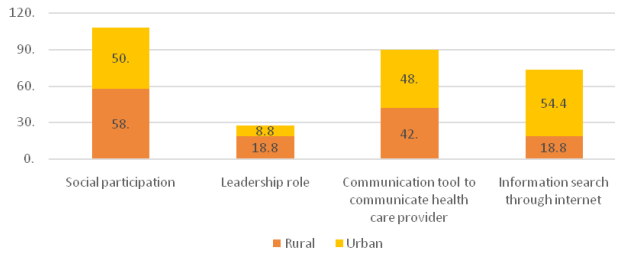
Women's income generation should lead to saving. 66.7% of rural women and 85.3% urban women have their bank account for saving money. ICT provides the opportunity to access bank accounts from anywhere at any time. 30.9% of urban women are availing this facility, and only 4.3% of rural areas benefit. Digital payment like google pay, BHIM app make the payment system. 16.2% of urban women are using payment apps, and only 1.4 % of rural women are using this kind of payment system.

Table 13: Mobility and Security among rural and urban women



Mobility means freedom of movement from different places. 68.1% of rural women and 83.8% urban women use to go outside alone. 58% of rural women and 82.4% urban women use mobile when they are alone out. ICT provides safety and security to women while they visit different places alone. 50.7% % rural women and 73.5% urban women feel safe while going mobile. The mobility level is higher in urban women. Use of mobile while going outside of the house gives a safety-feel to women. Women in urban areas prefer to communicate by mobile from outside of the house.

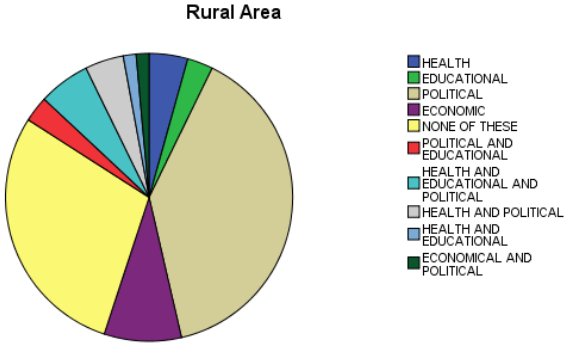
Table 14: Social Participation, information access and communication among rural and urban women



Participation in social platforms like NGO, religious groups, community groups, and political groups can define women's social flexibility. Social participation is higher in rural women as participation in Self Help Groups is higher in rural women. 58% of rural women are members of any group, while 50% participate in urban women. Rural women's level of social participation is higher than urban women. The leadership role in social organisation is also higher in rural women.

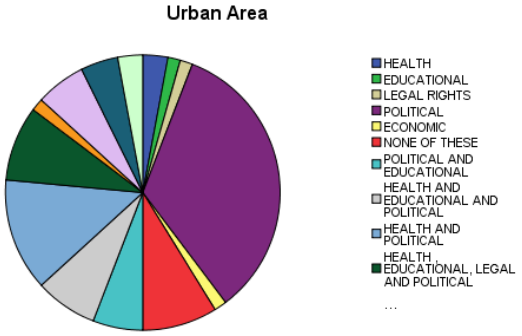
ICT provides information access to women. Information on health, education, political events, legal rights and jobs. The Internet is the key to the information society. Various applications, sites, online portals are hubs of this information. ICTs give facility in case of information on health and access to health care providers. Women can seek information on different diseases and health care providers through the internet and mobile.42% rural women and 48% urban women use ICT for health aspects. 42% rural and 42.6% urban women use mobile for doctor appointments. ICTs are vibrant in information disseminating. Information is the basis of empowerment. The Internet opens up the door for a considerable amount of information that can help women for empowerment. 18.8% of rural women search for information through the Internet, and 54.4% of urban women engage in the same activity that shows information access is higher in urban women. Rural women are lagging in information search through the Internet.

Table 15: Information access through ICT by rural women



Women need information access for their empowerment. In rural area 4.3% women access health information from different ICT tools and 2.9% women access educational information, 39.1 % women access political information, 2.9% women access political and educational information, 5.8% women access health, educational and political information, 8.7% women access economic information, 4.3% women access health and political information, 1.4% women access health, and educational, 1.4% women access economic and political information from ICT.

Table 16: Information access through ICT by urban women



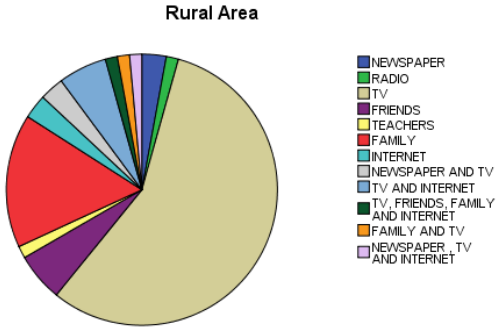
In the urban area, 2.9% of women access health information from ICT. 1.5% of women access educational information. 1.5% of women access information on legal rights. 33.8% of women access political information., 1.5% of women access economic information. 5.9% of women access political and educational information. 7.4% of women access information on health, education and political issues. 13

.2% women access health and political information, 8.8 % of women access health, educational, political and legal information in ICT. 1.5% of women access health and educational information. 5.9% of women use ICT to access health, educational, legal rights, political and economic information. 4.4% of women access educational, economic and political information from ICT. 2.9% of women access economic and political information from ICT. The percentage of access to health, education, and economic facilities are less, and most women use ICT to access political information. Economic and political information access is higher than any other kind of information for rural and urban areas.

Political Aspects of Women Empowerment

Access to political information is essential for the political empowerment of women. Women use different sources like TV, radio, newspaper, the Internet, to acquire political information.

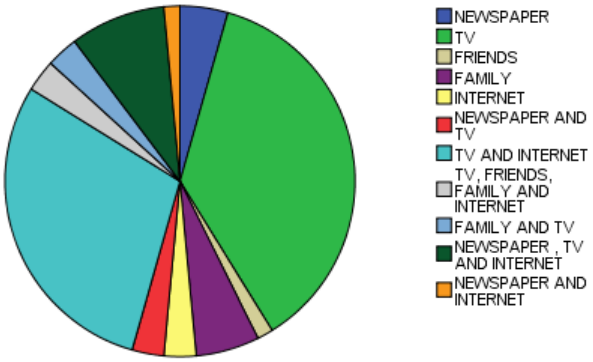
Table 17: Source of political information about rural women



In rural areas, 2.9 % women use newspapers, 1.4 % women use radio, 56.5% women use TV, 2.9% women use the Internet, 2.9% women use newspaper and TV, 5.8% women use TV and Internet, 1.4% women use newspaper and TV and Internet to gather political information. 5.8% of women from rural areas collect political information from friends, and 1.4% from teachers and 15.9% form families and 1.5% of women gather knowledge from TV, friends, family and the Internet. Most of the rural women depend on TV for political information.

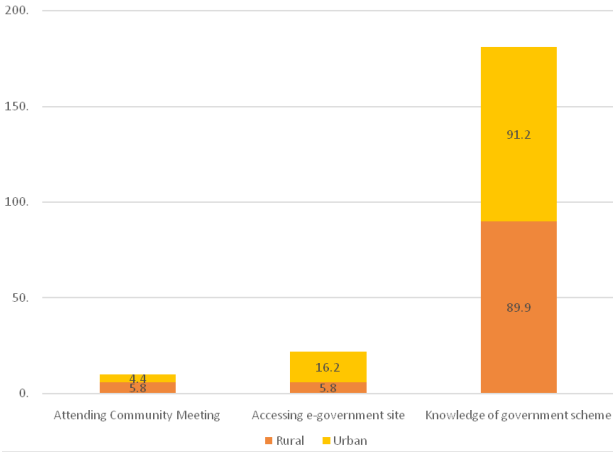
Table 18: Source of political information about urban women

Urban Area



In the urban area, 4.4% women use newspaper as a source of political information, 36.8% women use TV, 2.9% women use the Internet, 2.9% women use newspaper and television, 29.4 % women use tv and Internet, 8.8% women use newspaper, TV and Internet, 1.5% women use newspaper and Internet. 1.5% of women collect knowledge from friends, 5.9% of women collect knowledge form family, and 2.9% of women collect knowledge from TV, friends, family and the Internet. Tv is the dominant source of information in both rural and urban areas. The Internet, as a source of political information, is higher in urban areas.

Table 19: Political access of the rural and urban women



E-governmental sites have given governmental facilities access straightforwardly, but 94.2% of rural women do not use e-government sites. Urban women are also lagging in using e-governmental sites. Government has planned schemes for women to provide them facilities. 89.9% of rural women and 91.2% urban women know governmental schemes. That means the rest of the women don't know about governmental schemes. The source of knowledge on government schemes is mainly TV. Women rarely use the Internet as an information source in case of governmental schemes.

Women rarely engage in political discussion in the public sphere. 76.8 % of rural women and 63.2% of urban women never had any political debate in public places or outside the family. The rural women who use ICT for political discussion use it in phone calling (10.1%), Facebook (2.9%), WhatsApp (1.4%) and in other platforms (4.3%). Total 18.3% of rural women use ICT for political discussion. In the urban area, 27.8% of women use ICT for political discussion. 10.3% urban women use phone calls, 8,8% urban women use Facebook, 4.4% urban women use WhatsApp, 2.9% of urban women use phone calling and Facebook, 1.5% urban women, use phone calls, Facebook and WhatsApp for political discussion. The percentage of urban women engaged in political discussion in ICT is more than that of rural women.

Table 20: Demographic profile and ICT access

	Age	*Educational Qualification*	*Income*	*Area*
Radio	14.402 ***	15.356 **	1.143	8.734 **
Television	3.320	1.291	0.764	1.791
Mobile Phone Access	3.847	1.569	0.719	0.166
Mobile Owning	5.401	9.122	2.745	5.243 *
Computer	32.641 ***	54.055 ***	2.793	9.666 **
Internet	13.300 **	14.193*	5.513	23.016 ***
Type of Internet	6.935	7.774	6.782	13.112 **
Technological Problem	15.561 *	0.271 *	4.295	12.268 **

The demographic profile affects different aspects of ICT access. Age of the women has a significant effect on radio access (p>0.001), computer access (p>0.001) and internet access (p>0.01). The women's age also significantly affects technological problems (p>0.05) faced by women in mobile usage. Educational qualification is another determinant of ICT access to women. Educational qualification has an effect on radio access (p>0.01), computer access (p>0.001), internet access (p>0.05). It also has an impact on technological problems (p>0.05) in mobile usage. Radio access (p>0.01) of women, mobile owning (p>0.05), access to the computer (p>0.01), access to the Internet (p>0.001), type of Internet (p>0.01) they use all these are affected by area of residence of women. The area also affects technological problems (p>0.01) faced by women in mobile usage.

Table 21: Demographic profile and economic indicators of women empowerment

	Age	*Educational Qualification*	*Income*	*Area*
Participation in Self Help Group	9.437 *	8.901	1.749	3.212
Activities in Self Help Group	21.079 *	12.353	9.304	2.135
Individual Bank Account	3.941	4.563	2.527	6.878 *
Digital Banking in Mobile	3.685	16.095 **	17.031	11.677 ***
Mobile Money Account	6.949	15.175	8.146 *	7.712 **
Internet for Work	6.496	25.312 ***	12.526 *	12.504 ***
Planning for Work	16.374 *	30.597 ***	6.976	1.927
Preference for Online work	8.378	18.203 *	7.780	4.796
Purchase	7.918	5.901	12.684 *	3.643
Purchase (internet search)	16.102 *	20.519 *	8.667	7.402 **
Searching job through Internet	25.373 ***	38.938 ***	8.943	7.557 **

Age, educational qualification, income and area of living affect a few economic indicators of women empowerment. Age is affecting participation in self-help group (p>0.05), activities in self-help group (p>0.05), whether the woman is planning to work or not (p>0.05), an internet search for product details for purchasing any product (p>0.05), searching job through the Internet (p>0.001). Educational qualification of the women affects the use of digital banking in mobile (p>0.01), using the Internet for work (p>0.001), whether the woman is planning to work or not (p>0.001), preference of online work (p>0.05), an internet search for product details for purchasing any product (p>0.05), searching jobs through Internet (p>0.001). Income level of the women affects access to mobile money accounts (P>0.05), using the Internet for work (p>0.05), freedom of purchase (p>0.05). Area of living has an effect on saving bank account (p>0.05), access to digital banking in mobile (p>0.001), access to mobile money account (p>0.01), an internet search for product details for purchasing any product (p>0.01), searching jobs through Internet (p>0.01)

Table 22: Demographic profile and social indicators of women empowerment

	Age	*Educational Qualification*	*Income*	*Area*
Mobility	2.943	9.305	2.894	4.621 *
Communication through mobile calling	2.906	10.268	0.882	7.673 **
Safe-feel with mobile	3.790	10.126	1.853	8.895 **
Social participation	10.082 *	4.215	0.106	0.876
Level of social participation in any Organisation	9.397	6.315	7.068	14.567 ***
Leadership role in the Organisation	3.963	9.896	8.994	3.675
Communication with Health care provider using a communication tool	3.023	11.471	7.683	0.584
Searching information through the Internet	28.338 ***	36.767 ***	0.529	18.218 ***

Age has a significant effect on the social participation of the women (p>0.05) and searching for information through the Internet (p>0,001). Educational qualification only significantly affects women's information search through the Internet (p>0.001). Freedom of mobility of the women (p>0.05), communication through mobile from outside of the home (p>0.01), safe feeling with mobile while going outside (p>0.01), level of social participation (p>0.001) and information search through Internet (p>0.001) are all indicators having significant effect by area of living of women. The income of women does not affect any of the social indicators of women empowerment.

Table 23: Demographic profile and political indicators of women empowerment

	Age	*Educational Qualification*	*Income*	*Area*
Political Discussion	14.726	20.485	5.838	4.901
Attending Community Meeting	4.007	18.700	1.097	1.143
Accessing e-government site	19.964	28.992**	7.089	16.153***
Knowledge about the government scheme	7.242	26.676**	2.073	0.2811
Awareness of legal rights	10.190*	17.294**	3.415	0.388

Political indicators of women empowerment are affected by age, educational qualification and area of living of women. Age has a significant effect on awareness of the legal rights of women (p>0.05). The educational qualification has a significant impact on access to e-government sites (p>0.01), knowledge about government schemes (p>0.01) and awareness of legal rights (p>0.01). Area of living has a significant effect on access to e-government sites (p>0.001). The women's income has no significant impact on any of the indicators of political empowerment of women.

Discussion

Information communication technologies allow assembling information on education, health, rights of women, governmental schemes, and political information. Economic facilities such as banking and digital wallet platforms (google pay, Paytm) have been fostered by ICTs. The Internet and smartphones are useful inventions of technology. As smartphones are cheaper than computers, people prefer to use smartphones to access the Internet. Rural women have mobile phones, and many women have their mobile, but access to the Internet is significantly less by rural women. Women from a rural area who don't use internet face barriers while using it. The barriers are lack of knowledge and skills, techno- phobia, economic factor and lack of knowledge about the Internet's usefulness. Access to different ICT tools depends on the socio-cultural factors of the woman. The rural and urban area shows different result in the case of access to ICT. Urban women's access to radio, television, computer, Internet and mobile is higher than rural women. Some factors affect ICT access of the women e. g. knowledge and skills to use ICT, economic status of the woman, educational qualification. Age of the women affects access to the Internet and computer, and the less is the age the is the access. The women who are higher educated are more flexible to use the computer and Internet. In the case of rural women, access to Internet and computer is less than urban women. But, access to mobile does not depend on age, educational qualification or area of living.

Economic dependency is one of the reasons for gender inequality. Half of the women in rural and urban, both areas have their income. The rural women have access to saving account, but they don't access the digital money facility. The number of women is significantly less in the case of digital money using. Access to digital money facility is less in the urban area too. Only a few women from the metropolitan area use a digital wallet or mobile money. Women can engage in an online job from home, but they don't prefer to do that. Women's use of the Internet for work is significantly less in rural and urban both areas. Social empowerment level, such as mobility and information search is less in the rural area. In a rural area, rural women depend on traditional sources like family and neighbours for political information. They do not rely on ICT tools. But urban women depend on ICT tools for political information. Educational qualification decides the tendency to use the Internet for work, the higher the educational qualification, the more the tendency to use the Internet for work. The educational qualification also decides the ability to search for jobs on the Internet and mental set up for starting income generation activity. Urban women use the Internet more than rural women. They are more active in digital banking, digital wallet and searching for jobs with the Internet. Various online sites, applications are useful to gather useful information. Women in the urban area use the Internet more than rural women to search for information. Information search on health, a political issue, education is higher in higher educated and young women. Access of e-government sites is another factor that is also affected by the educational qualification and area of living of the woman. Mostly, higher educated urban women use e-government sites.

Findings and Recommendation

Women empowerment depends on the economic, social, political and technological development of women. It also depends on education and socio-cultural status of the women. The empowerment level is different in rural and urban areas as the socio-economic situation is different in two places. Socio-economic status defines the use and access of various ICT tools. Rural women don't have much access to ICT tools like the Internet and smartphones, while urban women are developed in this arena. Rural women are economically active, but they mostly belong to lower-income strata. The cultural set up of rural women is also different. Their use of

ICT in economic activity is lesser than urban women. Access to digital banking, digital wallet, e-governmental scheme all these are less in rural women. Information access is another aspect of women empowerment. Rural women's information access is lower than urban women, affecting the empowerment level of women. Rural women have mobile access but not specifically to the Internet. Women lack awareness of proper use of the Internet and the facilities provided by the Internet.

Limitation of the Study

This study is conducted with some specific women empowerment indicators and does not cover other women empowerment areas. The researcher with specific indicators develops the schedule.

Future Study

1. The role of the Internet in the social empowerment of women
2. The role of the Internet in the economic empowerment of women
3. The role of the Internet in political empowerment of women
4. Mobile Communication and its barriers for women empowerment
5. Media and information literacy to promote women empowerment

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Annexure 1

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Reviewers Comment

Reviewer's Comment 1: The study addresses the existing gender inequalities through ICT tools. The study signifies its relevance by the fact that a limited number of studies are available on the theme. Most of the study in the area focuses on studying social and economic empowerment ,and technical empowerment isn't explored much.

Reviewer's Comment 2: The paper is comprehensive and conceptual in nature and very appropriately structured with a good and supportive flow of literature. The use of pie charts has made it more comprehensible for the readers. A good number of existing and updated literatures is provided.

Reviewer's Comment 3: The study signifies that there exists a gap between the level of empowerment between rural and urban women due to the varied socio-economic situation at the two places.The study provides future scope for the other research which can be explored further.

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Editorial Excerpt

The article has 02% of plagiarism which is the accepted percentage as per the norms and standards of the journal for the publication. As per the editorial board's observations and blind reviewers' remarks the paper had some minor revisions which were communicated on timely basis to the authors (Madhumita, K S & Ramesh) and accordingly all the corrections had been incorporated as and when directed and required to do so. The comments related to this manuscript are noticeably related to "Information Communication Technology (ICT) for Women Empowerment" both subject-wise and research-wise. Women in developing countries face barriers in accessing ICT devices like mobile, computer and Internet. Whereas, in developing countries like India, women's ICT access is affected by the socio-cultural aspects and specifically in particular to rural areas. The study is qualitative in nature and tries to analyse the use of ICT by the women for empowerment with the data collected through a structured questionnaire from sample size of 137 women of North 24 Pragana district of West Bengal. After comprehensive reviews and editorial board's remarks the manuscript has been categorised and decided to publish under "**Empirical Research Papers (ERP)**" category.

Acknowledgement

The acknowledgment section is an essential part of all academic research papers. It provides appropriate recognition to all contributors for their hard work and effort taken while writing a paper. The data presented and analyzed in this paper by (*Madhumita, Arul and Ramesh*) were collected first handily and wherever it has been taken the proper acknowledgment and endorsement depicts. The author is highly indebted to others who had facilitated in accomplishing the research. Last but not least endorse all reviewers and editors of GJEIS in publishing in a present issue.

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