

Analyzing Gender Divide in Mobile Phone Adoption

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Abstract: The paper uses ethnographic practices to apprehend the complexity of gender divide in the adoption of mobile phone and services in Sonitpur District and in Guwahati, Assam. The paper examines the barriers to effective use of mobile phone by women. The findings suggest that women's experience in technology domestication within and outside household can challenge the negative societal attitudes towards women as a passive users of technology. Mobile phone can be a substitute to larger digital divide and an instrument for women's empowerment to increase women's autonomy in family and community.

Keywords: Women Empowerment, Gender-based Challenges, Mobile phone, Social Support Network, ICT, Housewives, Rural Households, Informal Sector

1. INTRODUCTION

The persistent and strategic exclusion of women from the external information sphere and decision making related to community, society and state makes them vulnerable and dependent on male. Socially constructed gender roles and relations stand as major constraints behind women's access to and use of information and communication technologies. Due to family resistance and high domestic workload, women have to face serious gender-based barriers in order to build network outside home.

Most of the rural women are found to face the disastrous impact of poverty which drive them to engage in unorganized economic activities to eke out a living. Sluggish and unproductive formal sector has led to the growth of informal sector which is regulated by market demand and wages. The informal sector as a viable strategy for social development has escaped recognition for a long time by both social scientists and policy makers. As a result the contribution of women participants in the informal sector has not received acknowledgement.

According to social shaping of technology, the domestication and uses of technology determines the user agency the way they define, interpret and appropriate a technology in everyday life. This reconfigures gender bias of technology or vice versa (Wajcman, 2004). As techno feminism exposes, women have been excluded from the practice of design and innovation of technology. Access to ICT is the right of an individual (Ahuja, 2002). It is imperative that women are involved throughout the process and practice of technological innovation. Feminist approaches of 1990s and today share the optimism of information and communication technology in transforming gender relations. Manuel Castells (1996) and Nicholas Negroponte (1995) reinforce the potentialities of information and communication technologies (ICTs) in rooting out the knowledge and information barriers and create a free space for women. Digital technologies have configured women's identities, needs and priorities (Butler, 1999).

1.2 GENDER AND TECHNOLOGY IN EXISTING STUDIES

Various studies have exposed the blessing of Information and Communication Technology (ICT) facilitating communication and creating an enabling environment for economic growth and to improve education, business, and employment opportunities. The existing gender inequalities between men and women exacerbates digital divide in relation to patterns of ICT usage between men and women (DiMaggio et al, 2002).

Lee (2005) mentioned how social influence and family environment shape women's unfriendly attitudes towards technology and their fear of embarrassment. The commonality of gender bias in societal attitude towards women is reflected when women are treated as ignorant or incapable of dealing with a technology. Instead, technical ability to operate a machine is considered to be essentially a masculine characteristic. Gender is not conceived to be existing independent of technology.

The new technologies such as internet and mobile phone is known as 'labor-saving' devices. Information and communication technologies have offered new employment opportunities for women in call centres, software industry and help them to be self-employed and teleworking. Liberating power of ICTs has been highlighted by many studies (Golding 1999, Hafkin & Taggart, 2001, Mpogole, et al. 2008). The Government of India has various ICT initiatives such as personal computer for every home, free Internet initiative and e-strategies and so on. Working women are beneficiaries of ICT as computers are introduced in offices to perform simple tasks.

Gillwald, Milek & Stork (2011) argues over the conditions on which a mobile phone can contribute to gender equality when both men and women have equal access to education, employment and income. Lee (2009) points out that women can leverage the portability features of mobile phone and can easily report domestic violence. Mobile

phone enables privacy while talking which aids to consult to family planning agencies.

Dependent housewives often face challenges in regard to long distance travel owing to gender based barriers and concerns, heavy domestic workload etc. Access to mobile phones certainly expand their array of choices to obtain information within the limits of home.

According to Lee (2009), access to and owning a mobile phone ease fear, isolation, loneliness and boredom of women by helping them to adjust within confinement at home without worrying much about physical separation from the near and dear ones to them.

However, the mobile phone can be an instrument through which men reinforce their control over women and assert unequal gender relations within the household. Accordingly, this study recognizes the fact that within a context where women are financially autonomous, or have the financial capability has a co relation with the benefits earned through mobile phone.

Blumenstock and Eagle (2010) positively explains how mobile phone has become the lifeline of the poor and gives them a voice. Compared to other forms of communication technology, mobile phone is relatively affordable in developing countries (Goggin & Clark, 2009), which serves as a decent substitute for computers for the poor (Mpogole et al. 2008). Rottach (2010) mentioned in his study the effective role of mobile phone in creating new avenues for empowering women of poor rural communities. Studies also found that women's access to mobile phone increases their income generation opportunities thus, gives them a sense of economic and social empowerment (Aminuzzaman, Baldersheim, & Jamil 2003). By making women economically independent, mobile phone increases women's autonomy in family and in community (Lee, 2009).

Socialization of rural households begins at home with a strong family and kinship relationship (Aminuzzaman et al. 2003). Mobile phones is an instrument to build a necessary support network for women and provide them a safe and private means to maintain relationships and contacts (Shuler et al. 2010 p.848). The mobile phone has enlarged social circle by being an instrument of expression and sociability (Balasubramanian, 2010).

1.3 METHODOLOGY APPLIED

The study has employed mixed methods approach that involves both quantitative and qualitative study. 'Structured questionnaire', is administered as an instrument for data collection to elicit information on demographic and psychographic aspects of the respondents.

The aim of the survey is to assess the gender divide in the adoption and use of innovative applications, functions and services of mobile phone.

1.3.1 Objectives

1. To find out diverse uses of mobile phone by women members of a household
2. To find out the relationship between mobile phone literacy and participation of women in information society

3. To assess the relationship between use of mobile phone and women's participation in the labor market
4. To assess the barriers to effective use of mobile phone by women

The questionnaire is used as main research instrument for the study, which is developed in bi-language (both in English and Assamese) and distributed among the 40 households of 14 selected villages from 14 development blocks of Sonitpur District, Assam (India). Overall sample size from development blocks are 560 households. Women folk of the villages in Sonitpur District are separately interviewed on their interest in information need and the use of mobile phone technology. The variables identified on the basis of literature review and previous empirical findings are mainly- age, gender, education and occupation of the women members of the household, monthly expenditure on mobile phone, monthly expenditure of the household on information and communication technologies, personal capability (skills and knowledge) of the household women members, frequency of using mobile phone and internet café by women member of the household, women's experiences in the flexibility of accessing mobile phone and internet. The frequency of the use of mobile phone is measured by the hours of engagement in voice and data telephony by the users.

The variables on educational qualification of women members of households are divided into three levels: elementary or primary, high school, university and other technical education. Skills and knowledge of the women members of the household are measured by the respondents' perception of their own skills and knowledge in the use of embedded features and applications in the mobile phone; the capacity to manage simple work on a computer and to surf and use internet; proficiency in English language (0=no knowledge, 1=beginner, 5=advanced); psychological attributes regarding the interest in information and digital technology. Information sources in household are measured by the possession of various communication technology such as TV, radio, computer, internet, newspaper, mobile phone etc. This is accompanied by the attitude of the women members of the household towards the awareness of events in their surrounding and the interest of the household members to get informed or to participate in such events. Venues and means of accessing information are found varied and are not necessarily determined by the owning of the communication technology. Higher possession of number of communication technologies in a household makes obvious co-relation with higher information needs of households. Nevertheless, the need is no longer separated from the affordability and status seeking attitude of the respondent members of households.

1.3.2 Findings and Discussion

10 percent of total surveyed women are found access to job portal to seek for job through mobile phone. While use of mobile phone for accessing job portal by men is higher (30) than women. 20 percent of women are aware of mobile internet but they have not attempted to use internet

through mobile phone. 20 percent of women household members browse social networking site through mobile phone and around 30 percent of total surveyed women use to access websites through mobile phone to get seek information. 15 percent of surveyed women actually participate in online discussion and forum by providing their opinion via mobile phone. 20 percent of surveyed women do shopping through mobile phone. In fact the use of mobile internet is found more among men than women. 4 percent of surveyed women experience m-banking or money transfer through mobile phone in comparison to 10 percent of men. 2 women are found to own mobile wallet in comparison to 4 men. 10 percent women use to get reminder from doctors in relation to health such as jokes, timely suggestion, on demand doctors' advice. 30 percent women in comparison to 50 percent men use instant messaging apps and prefer to connect with near and dear one anytime anywhere. 50 percent of surveyed women do not possess a high end mobile phone, smartphone with all essential features, while only 10 percent women have owned smart phone. Whereas 60 percent of surveyed men are found to own smartphone. Only 5 percent of women those who own high end mobile phone have known to and used GPS to get the detail of route and distance. Those who have used GPS is out of curiosity have abundance sense of autonomy in them often belong to the early adopter category of diffusion of mobile phone. Rest of the women require help and assistance of others to operate a functions or application of mobile phone. Many women in rural households get an accompaniment of male or female members while travelling.

40 percent of total surveyed women have owned mobile phone for last three to four years are more informed about health, environment problem in their neighborhood than before. 50 percent of women use mobile phone to check exam result and are regularly in touch with teachers about school meetings, children's educational progress in school. Local social norms and values are likely to influence the productive use of mobile phones. The study reveals gender differences in mobile phone uses in rural Sonitpur District. The study reveals that lack of knowledge regarding how to use the device and cost dissuade women not to own and use a mobile phone. The study found that men's use of mobile phone is related to business purpose, while women's use of mobile phone is related to kinship maintenance.

The responsibilities towards household tasks restrict women to travel. Comparatively less frequent travel to their male counterparts limits women to make new contacts and to expose to opportunities outside home.

Since men in households own mobile phone for relatively earlier and longer than women do, men earn more familiarity with the device and learn new uses. The perceived usefulness of mobile phone for increasing contacts and job opportunities are realized more by men than women. This limits the business use of mobile phone for women. Men are found to leverage more from heterogeneous ties than women in use of mobile phone for business purpose.

Use of cellular telephones allow rural women to save travelling time between the market and suppliers, introduce women to market and to toll product prices thus, assist in the constant juggling of paid and unpaid family activities.

Almost all women respondents of the surveyed households (98 percent) are found capable of individually handling the very basic functions of making and receiving calls in mobile phone. The majority of women do not satisfy the degree of SMS literacy. Around 70 percent of the surveyed women view text messages out of which only 25 percent of women are able to send text messages. Many of those SMS illiterate women have knowledge in English. Majority of housewives among the womenfolk of surveyed households are apprehensive about sending SMS on account of possible mistakes and subsequent fear of putting themselves into uneasy and embarrassed position at the receiver's end.

On the other hand, women are found to avoid using complex functions of mobile phones. Women above 35 years of age with primary education had a relatively less score on mobile phone literacy, while women at or below 35 years of age with secondary education or above score relatively high on mobile phone literacy. Moreover, it was interesting to note that those women who lived in extended joint family (nearly 60 percent lived in extended joint family) scored relatively high on mobile phone literacy. This can be attributed to regular support in close interaction to the broader circle of a joint family compared to those who lived in nuclear family.

More men (69 percent) than women (48 percent) were found to have at least one unique use of the mobile phone. The most drastic difference between genders was use of the calculator function. Approximately 62 percent of men and 32 percent of women use the calculator function of the mobile phone to calculate proper market prices. Nearly half of the women (40 percent) said that they don't understand the use the calculator function, compared to 13 percent of men. This finding indicates an opportunity to train women on how to use this application to increase informed decision making, efficient and informed action to lead to greater productivity.

Around 65 percent of women members of the households are found to use mobile phone to make invitations to relatives and friends on occasions and 60 percent of surveyed women are found to use mobile phone to communicate with children's school teachers.

40 percent of total women members of surveyed households are mostly marginal women workers in the villages. These women have been using the mobile phone to communicate with clients, suppliers or producers belonging to associations, which indicates a connection with marketing decisions. 35 percent of total women surveyed are farmers who are found to use the mobile phone to obtain information about crop or livestock production, which indicates a connection with production decisions. It has made the perception that communication has improved with the use of the mobile telephone more evident.

The percentage of women (50 percent) and men (49 percent) who perceived transportation and operational efficiency to be a primary beneficial impact of the mobile phone was nearly equal. However, a greater percentage of men (64 percent) than of women (44 percent) felt the mobile phone increased their ability to reach new contacts and opportunities. The finding that men associate the benefits of mobile phones with an increase in contacts and opportunities could be due to the fact that men are more mobile than women.

Majority of women in rural Sonitpur District are found to be engaged in the agricultural labor force. This declines the notion that farmers are essentially men when women can at best assist male farmer in agricultural production.

Besides agriculture, many women are found to be involved in crafts and commercial activities.

Women, while fulfilling domestic needs in households are equally engaged in production and selling of handicrafts and to participate in market. Women's contribution to the household economy through the sale of their handicraft products like mats, clothes are other instances found in survey areas. More women than men use mobile phones for agriculture emergency assistance, which dismantle the usual assumption that women use mobile phone only to maintain kinship, rather women do make multiple use of mobile phone in order to increase agricultural productivity in rural India. The existing use of mobile phone by women is found to sell surplus agricultural products for profit. This finding further underscores the necessity of continually integrating stakeholders' to design training sessions for women to use mobile phone for fast agriculture and business related information and to fulfill the local needs.

The adoption of mobile phones with advanced features by women in rural areas suggests that mobile phones are becoming affordable and accessible in rural areas.

Being a tool to share feelings and experiences with a further scope for enrichment, mobile phone in custody of a woman can open avenues to address the issues which were previously considered as beyond women's capacity. Mobile phone has become catalyst to knowledge networking for women by broadening the scope of activities. Women can experience the much required flexibility in time and space at home and at office and get a space to navigate in between home and office by access to mobile phone. The provision of flexi-timing is important for housewife as well as for working women as it saves them working women from social isolation by helping division of work at the household.

The women in the surveyed household positively accommodate mobile phone as a means to quick and easy access to information on situations of probable risk and uncertainty, finding out children's and spouse's whereabouts and delays in returning home, etc. Finally, the women accepted mobile phone as time-saver, cost effective technology that aids to manage effective co-ordination between meetings and travelling.

Increase monthly expenditure on mobile phone on buying pre-paid does not lead to the increase in household earning or income. Use of mobile phone is positively related to

increase autonomy and economic independence of women member of the household. Hence, average expenditure on mobile phone will lead to increase income in households. Increase use of mobile phone by women members of the household is negatively co-related with the information seeking attitude. Increase use of mobile phone is positively related to household management.

Access to mobile phones led the poor women to learn new terminology such as "mobile", "camera phone", "SMS", "card connection", "phonebook", "voice mail", "reload", etc. Knowledge on these terminologies help women to find a place in the local information economy as well as in local culture by using the new mobile phone related vocabulary in their day to day life. Mobile telephony related terminology and the SMS lingo is popularized by mobile phone has captured the mental model of the users (Palen et al. 2000). Many women expressed their interest in replacing their mobile phones periodically when new models with improved features are introduced to the market. Lee contends this behavior of users as one kind of empowerment (2005). Given this broader sociocultural context of the surveyed households, women hailed from poor rural backgrounds with no formal technology education, acquire mobile literacy by the access to mobile phone and pace themselves up with the developments in the hi-tech world. At individual level, this equates empowerment of the poor illiterate marginalized women in households.

1.4 BARRIERS TO EFFECTIVE USE OF MOBILE PHONE

Failure of various government sponsored ICT (Information and Communication technology) scheme in Assam such as CIC (Community Information Centre) shows the lack of interest of rural households to take the benefit of such schemes. Prejudices among women folk on the supposed difficulties to operate Internet, technology-phobia, the cost of operation and owning, lack of time beyond household management, child rearing, and informal activities, lack of skills, even lack of knowledge regarding the benefits of ICTs close to their socio-economic realities have failed ICT related projects in rural areas. Around 82 percent fall under BPL category households who at large depend on petty sources of income, such as carpentry, fish vending, masonry and driving etc. and without any permanent source of income. Everyday fluctuations in income creates a scarcity in household income.

To add to that condition, when men had a greater access to and control over household income coupled with other priorities of the household that is obliged to be met with limited financial resources, women are left with limited choice to possess a mobile phone.

The traditional gender norms impose women to focus on household basic needs which makes it difficult to freely bear the cost of using and maintaining a mobile phone and take advantage of it.

Women, who themselves own a mobile phone had full control over the use of phone and rendered autonomous space a phone creates. In many cases, women use phone of

her spouse, which limits women's access and control over the phone.

The cost of communication is a factor which will determine the benefits and opportunities that can be obtained from the access to mobile phone. BPL (Below Poverty Line) households especially BPL women lack opportunity to get the benefit from mobile telephony. Within these households, conforming to traditional gender stereotyping the husband being the protector and the head of the household has become the main decision-maker with regard to household finances. The women's use of mobile phones was largely controlled by the spouse having the control over household finances. Poverty issues constrain women to keep a mobile phone with them a relatively less priority.

1.5 RECOMMENDATIONS AND SUMMARY

The women's acts of sociability, leisure and entertainment, security and safety, and need for information are socially and functionally defined which designs the use of mobile phone by them.

Women who are confined to the boundaries of four walls of the household, mobile phones essentially functions as a tool to develop and maintain external social networks with friends and other acquaintances and to generate social capital. Both Mobile phone and internet have the potential to break down the perceived isolation of women by connecting to other likeminded women and men. Access to outside home social networks also provided them a sense of identity outside of the family. Many women have identified mobile phone as a channel of emotional relief to the women during hard times. Support network generated through the mobile phone has helped to ease a stressful situation by facilitating instantaneous contact with their loved ones, simultaneously without violating their privacy. The emancipating effects of mobile phones find reflection in the gradual erosion of physical, spatial temporal boundaries that was socially constructed for women by creating a free space for them.

Most of the women in surveyed households could not relate the benefits of information and communication technology into their living. Limited or no access to roads or transport, credit and other development inputs are some factors that are responsible for shaping ignorant perception of women towards operating information and communication technology. Access to affordable services and availability of infrastructure such as disposal of electricity, transport and proper security mechanism in the society are major requirement if ICTs are to be used for women's economic empowerment. To use internet and to get the benefit from internet requires a great amount of support from institutions like family, school, government and private sectors to create an enabling environment. Any schemes or sponsored internet facilities by Government and Private Bodies has to be accompanied by additional services and training.

Owning and access to mobile telephony and Internet can aid women to search for job for themselves and to increase information, opportunities and interaction. Policies related to universal access to mobile telephony and to community

access to internet at affordable prices can necessarily empower women.

The growth of cyber cafes and kiosks has been rapid in India, although it has spread in Assam after a decade cybercafé developed national base. Expansion of public telephone and ICT access points, libraries, information centers or cyber cafes has been few strategies to increase access to remote areas and marginalized groups which could not registered the expected success. Making tele centers a part of existing institutions such as health centers, schools and community centers and to provide subsidized services can be another welfare scheme that government can take up. Tele centers, which are run as business ventures cannot guarantee affordable access because most of the charge for services according to their costs.

The factors such as locational disadvantage, inappropriate opening times which is often not consistent with the household time schedule, issues related to security and lack of requisite transport facilities pose to be constraints on the access to internet facilities for women. The multiple roles and responsibilities of women may at times limit them to find time to use services of internet kiosks or café. Survey finding reveals women's comfort with women-only training environments. Avenues such as free of cost training programs, incentive to participation has to be introduced to increase women's interest to participate such program.

Lack of native content in vernacular languages continues to be a major barrier in effective use of internet and mobile phone by women for economic autonomy. Multimedia can be developed to provide information both in written and verbal language. Developing relevant and useful content in local language is a challenge which can be partially met by introducing multimedia training arrangement by providing information both in verbal and written language.

Affordability and cost of Information and Communication Technologies has been a greatest barrier to access and use of ICT by women. Personal ownership of computer and internet may not be feasible in the foreseeable future for the vast majority of women in rural Assam however, mobile phone technology can surpass the visible constraints which can in fact cater to the information needs and interest of women. Hence possessing a mobile phone technology and receiving requisite services can possibly address the gender based digital divide.

Evenhanded equitable access to mobile phone and internet facilities will make receiving and producing information at ease and relevant to women, thus render them to desire for autonomy and become independent. In order to identify benefits of mobile phone, women themselves have to participate and deliberate upon designing and developing mobile phone and to find innovative uses in consistent to their needs and preferences.

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