International Journal of Humanities Arts and Business (IJHAB)
ISSN: 2709-0604
Volume-01, Issue-02, pp-11-23
www.ijhab.com

Research Paper Open Access

An assessment of Technological Development and Women Empowerment in Bangladesh: A study in Dhaka city

Muhammad Hasibul Hasan
(Senior Lecturer, School of Business, University of Liberal Arts Bangladesh-ULAB & PhD Candidate, University Malaysia Perlis-UniMAP)

Citation: Hasan, H. Muhammad. (2022). An assessment of Technological Development and Women Empowerment in Bangladesh: A study in Dhaka city *(IJHAB); Vol-I, Issues-2.*

ABSTRACT : *Technology plays a vital role in the social, political, and economic empowerment of marginalized communities, particularly women. The most important role in this process of women's emancipation is played by information and communication technology (ICT), as lack of access to information directly affects women's subordination. The current study intends to evaluate the relationship between technological advancement and women's empowerment in Dhaka, Bangladesh, by looking at the current situation of women's use of ICT and its effects on their empowerment in several areas of their lives. This quantitative study used a cross-sectional approach to enquire 120 women who used technology for work or business-related purposes. According to the findings of the study, technology significantly contributes to empowering women in a variety of fields, such as politics, business, entrepreneurship, and education, by giving the information and technical support they need. Women can communicate information, obtain online education, and participate in e-commerce activities more easily when technology is used effectively. ICT is effectively used to help women's voices be heard both locally and globally. This study offers a crucial new perspective on the state of women's technological participation in the city of Dhaka and how such engagement affects the way that women are empowered.*

Keywords*- ICT, empowerment, economical freedom, women, entrepreneurship*

I. INTRODUCTION

When women participate in the workforce, assume leadership positions in the political and social spheres, and have access to finance, it may be said that they are empowered (UNECE, 2012). Women's empowerment reflects gender equality, which is a must for moving the nation forward, attaining any level of economic success, and pursuing inclusive and sustainable development (UN-Women, 2014). In several researches, the concept of empowerment was frequently used in combination with ideas like self-concept, self-esteem, and self-worth (European Parliament Report, 2016, The World Bank, 2011, Greenwood, Sshadri, and Yorukoglu, 2005). Some studies used the word "empower(ment)" to describe the idea of this particular interest. These studies defined empowerment as a process with several foci, such as, people having choice or influence over their decisions, being multidimensional and having an impact on many distinct aspects, or placing a focus on boosting people's ability, including internal and external resources (Chew, Ilavarasan,& Levy, 2015, Handapangoda & Sisira Kumara, 2012, Lindsay, et. al., 2013, Vivakaran, & Maraimalai, 2017). Many studies also avoided using the words "empower" or "disempower" and instead utilized less

direct wording to indicate empowerment. As an alternative, synonymous explanations of the term "empowerment" were used. One such definition of empowerment, for instance, is the process of enabling a sense of self-efficacy or self-worth in the competence to overcome obstacles to resources as well as those to decision-making control (Potnis D., 2016, The World Bank, 2011). Others described empowerment as a process that instills confidence in one's ability to overcome challenges and assert control over resources (Salehi, Isfahani & Djavad, 2000). The term "empowerment" in the current study mostly referred to the economic freedom, right to make decisions, and change of women's social and familial position that came about as a result of their use of technology.

Information and communications technology (ICT) is usually seen as a source of socio-economic advancement in the context of global development (Aziz, 2020). Numerous scholarly studies have shown how widespread access to and use of ICTs may bridge the digital divide and empower marginalized populations, especially women in underdeveloped countries (Gomez & Camacho, 2011; Islam & Slack, 2016). The widespread use of ICTs, their adoption, and the transition to a digital society have societal and economic repercussions that have the potential to lessen inequalities that already exist (Burrell, 2010; James, 2005). The potential importance of ICT for women's empowerment through informational freedom is highlighted by focused study on ICT and women's empowerment (Ahmed et al., 2006; Laizu et al., 2010b; Mehta & Mehta, 2014; Wamala, 2012; Yusuf & Alam, 2011). ICTs were hailed at the Geneva World Summit on the Information Society (WSIS) in 2003 as vital tools for empowering women (OpokuMensah, 2004). Since then, the literature on ICTs and Development has concentrated on how ICTs may be utilized to minimize gender disparities and empower women, as well as how they can be used to advance women development (Gurumurthy, 2004; Gurumurthy & Chami, 2014; Hafkin, 2006; Sey, 2011; Tenhunen, 2018). The United Nations Division for the Advancement of Women is particularly concerned with ICTs' effects on women and how they might be used to advance women (UNDAW), (Marcelle, 2002). Successful case studies from many countries describe the use of ICT as a tool for the economic empowerment of women through participation in public life and the improvement of their skills and competencies in society (Prasad &Sreedevi, 2007, Mitchell & Gillis, 2007). When used properly, ICT can offer women improved options for information exchange, access to online learning, and involvement in e-commerce (Marcelle, 2002). One of the main goals of SDG 5 has been recognized as the use of ICT to improve women's empowermen (Zhao, 2015).t. ICT is actually necessary to empowering women and achieving gender parity. ICT empowers women to carve out their own independence and space. ICT makes it possible for women to advance socially and succeed professionally in the professions of their choice. In addition to assisting with SDG 5, ICT also plays a crucial role in achieving the other SDGs (Zhao, 2015).. The current study is concerned with how women are empowered by technology, particularly information and communication technology (ICT), and how this empowerment affects women's lives.

According to studies, using ICTs can boost household income, improve women's health, nutrition, and educational outcomes, and improve their general well-being (Hilbert, 2011; Kularski & Moller, 2012). The ideas of population economic promotion, notably empowerment and public engagement, are strongly influenced by access to and use of ICTs (PHAC, 2012). If women lack the power and freedom to obtain the resources required to participate fully in society, they may be denied of the enjoyment of fundamental requirements. Women who have the authority to make decisions in life are more likely to have equitable access to the skills and resources that can support effective living (PHAC, 2016). As a result, the usage of ICTs can help empower women and uphold their rights. Numerous studies have shown that women's social and familial roles shift as a result of

empowerment. For instance, being able to make household decisions is a good sign of women's empowerment (Manisha Desai, 2010). The family is seen as the foundational institution of women's empowerment (Chaudhry & Nosheen, 2009). A study by Nadim,, and Nurlukman, (2017), demonstrates that empowered women have a high degree of decision-making power inside their families. The responsibilities of women in home decision-making and their control over financial matters were taken into consideration by Malhotra and Mather (1997) as factors of women's empowerment. Women's empowerment frequently results in improved spending on housing, food nutrition, and education for the entire family, allowing them to have an impact on family decisions (Thomas, 1990, 1994; Duflo, 2003). Additionally, there is a positive relationship between income and empowerment (Luci, 2009), and the source of money has a positive impact on daily life in terms of reducing poverty, promoting rights, and engaging in politics **(**Noreen, 2010). Additionally, women's empowerment encourages them to acquire knowledge, experience, and confidence so they may raise their kids more firmly in the rules and participate in decision-making (Qamar, 2000). Additionally, it will increase female exposure and awareness while providing them with equal possibilities to hold equal positions in society and contribute to the nation's and the country's economy **(**Manisha Desai, 2010). A social action to eliminate unjust, inequitable performances, which is referred to as mobility, is another essential component of empowerment (Chitrakar, 2009). Jejeebhoy (2000) noted that empowerment is closely tied to decision-making authority, mobility, and resource access. Women who have greater flexibility of movement in order to improve their socio-economic standing in their dynamic environments should feel more empowered (Luci, 2009). Numerous studies also show that access to reproductive health care, education, a reduction in infant and maternal mortality rates, an increase in the life expectancy of women, the elimination of child marriage, a decrease in parents' preference for sons, increased political participation of women, and an increase in the proportion of women in the labor force are all direct results of women's empowerment (Manisha Desai, 2010). Therefore, it can be concluded that technology may undoubtedly influence the life standards of women and help to empower them.

According to preliminary data from the South Asian country's sixth census, Population and Housing Census 2022, Bangladesh now has a population of 165,158,616 of which about 83.35 million are women compared to 81.71 million men. More than half of the total population are female and among the total female population, almost 60% women live in villages and rest of them live in towns or cities (BBS (2021). Thus, a huge number of female populations live in the cities. Besides, average number of women member in the household was 2.42 as against 2.47 male members in 2015 (HIES). Such number of members increased in 2020 with 2.27 women members and 2.23 male members **(**ibid). With the increase of total number, their influence has also increased in family and in society (BDHS 2021). For example, the percentage of women headed household increased slightly over the years, it was 13.3% in 2015 and increase to 14.2% in 2021 **(**BDHS 2021). Even though the male/female ratio is roughly equal in Bangladesh, women are in fact, overwhelmingly poor and disadvantaged compared to men (Guhathakurta, 2017). Rural parts of the country are comparatively more conservative than urban areas in terms of women's mobility, freedom of choice, education and employment rates. In both urban and rural areas, girls are often considered to be financial burdens, and from the time of birth, they receive less investment in their health care and education. For instance, a (UNICEF., 2006) report shows that for about 48 per cent of Bangladeshi women, their husbands made final decisions about their health, while 35 per cent said that their husbands made decisions regarding visits to family and friends. Hence, it is imperative that the women section of this country gets empowered so that they can contribute to the development of their family and nation and certainly ICT can play a crucial role in this process of women empowerment. Digital literacy can be a

true medium of women's empowerment and turn this huge section of population into a contributory section of the country's population. Without the real socio-economic development of the women, Bangladesh cannot expect being an influential country in the world stage.

Realizing the importance of technology in women development, the government of Bangladesh of launched The Digital Bangladesh Program in 2009. It aim was to transform Bangladesh in to a digital economy by 2021 and create a knowledge-based economy by 2041 (Islam 2018). The four pillars of Digital Bangladesh - Human Resource Development, Connecting citizens, Digital Government, and Promotion of ICT Industry - were playing a central role in aiding the achievement of Vision of digital Bangladesh **(**Lasker 2010). The government specially targets the ever deprived "Women" section of the population of this country for their empowerment through their involvement to the technological world to ensure their economic development (Hilbert 2011).

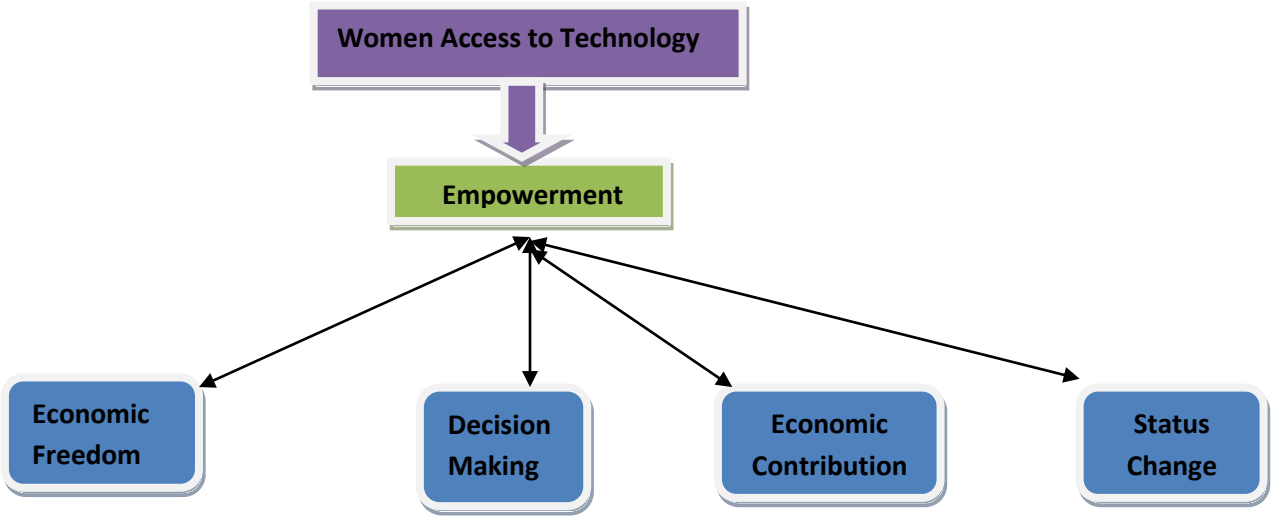
The government's initiatives in this regard have gained appreciation nationally and internationally, especially, women's increasing involvement to technology has been a remarkable example for many of the third world countries. However, the efforts of the government would be successful, if the women were positively motivated to accept new trend of technological advancement for the overall development of their lives and adapt themselves accordingly. The present study aims to explore the extent to which women living in the city of Dhaka in Bangladesh have accepted technological innovation for their socio-economic benefit. The study also tends to explore how technology has influenced the life standard of women through their empowerment.

II. OBJECTIVES

1. To find out the extent to which the women in Dhaka city use technology
2. To assess the impact of technological development on the empowerment of women living in Dhaka city

III. CONCEPTUAL FRAMEWORK

A conceptual framework is a system of concepts, assumptions, expectations, beliefs and theories that supports and informs research (Maxwell, 2005, p. 33). According to the reviewed relevant literatures and objectives of study and based on the introductory discussion, the researcher has identified the variables of the present study and showed their hypothesized relationship in the following diagram.



Technology and Empowerment (Hassan, 2022)

The diagram shows the relation between technology and women empowerment and its overall impact. According to Stine and Karina (2003), "empowerment" is a developmental process by which marginalized people and groups acquire the capacity to control their own lives and make deliberate decisions in life. This research work focused on women empowerment, especially economic empowerment, through the use of technology. Some researchers emphasized that the ability of women to earn a living is the main focus of the economic aspects of empowerment. Mahendra (2004) opined that women's empowerment is related to economic engagement, health, and education. Numerous studies have attempted to quantify the degree of women's empowerment using a variety of indicators and methods (Amin et al. 1998; Pradhan, 2003; Kishore and Gupta, 2004; Kabeer, 2005; Schüler, 2006; Klasen, 2006). The responsibilities of women in home decision-making and their control over financial matters were taken into consideration by Malhotra and Mather (1997) as factors of women's empowerment. Women's empowerment frequently results in improved spending on the family's overall education, housing, economic contribution to family and nutrition (Thomas, 1990, 1994; Duflo, 2003). Economic freedom is gained by women through this empowerment and consequently women experience a positive behavior from their family members and society **(**Nord, Riggio, Paliszkiewicz, 2017**)**). Based on the relationship of the variables discussed above, the researcher has adopted research methodology for the present study, developed survey instruments and analysed data. This conceptual framework formulated the course of the present research endeavor.

IV. METHOD

This quantitative study took a cross-sectional design to conduct the survey. Data was collected across six weeks dated from 1 June 2022 to 15 July 2022. The survey was conducted using online platform on 100 e-commerce and f-commerce institutions. 40 business enterprises were selected randomly from the member list of three e-commerce organizations such as, e-commerce Association of Bangladesh (e-Cab), Men and e-commerce forum (ME), and Women and e-commerce Trust (WE). Before selecting the enterprises randomly for survey, the researcher primarily sorted out the names of the institutions which were run by women. One participant was chosen from each institution and the selected respondents were the owners of those ICT based business enterprises. Thus, the total number of participants was 120. A questionnaire was developed containing 30 items to elicit data. It was divided into three parts. The first part of the questionnaire included the items related to the demographic information of the participants such as, age, education level, family related information, marital status, etc. The second section contained the statements related to the range of using technology by the women entrepreneurs to develop their economic condition leading to their empowerment. Section two is followed by section three which included the statements related to the condition of social, familial, and personal status of the women before and after their economic stability gained by technology use. The third section covered multiple issues to present a clear comparative picture of women’s status before and after of their economic empowerment. This section mainly focused on the impact of the women empowerment on their decisions making capacity, ability to bear the cost of education and purchase, affordability of travelling and entertaining activities, capacity of expense for medical treatment, ability to contribute to family income and savings etc., and its ultimate effect on upgrading their status. In case of choosing answer in the second section, respondents were allowed to select more than one option. The normality of data was investigated with the Kolmogorov-Smirnov test. Then, descriptive statistics such as frequency distribution, mean, and standard deviation was used to depict the demographical and the technology use status of the respondents. Moreover, analytical statistics such as the chi-square statistical test, Pearson correlation coefficient, and paired t-test were used to identify the significance of the relationship between personal status and the level of empowerment of the women respondents. The statistical tests also

indicates the significant difference of the women's status between their before empowerment position and after empowerment position. Data were analyzed with SPSS software (version 25), and the significance level was considered to be 0.05.

V. FINDINGS

Statistical Analysis

The normality of data was investigated with the Kolmogorov-Smirnov test then, descriptive statistics such as frequency distribution, mean, and standard deviation and analytical statistics such as the chi-square statistical test, Pearson correlation coefficient, and paired t-test were used. Data were analyzed with SPSS software (version 25), and the significance level was considered to be 0.05.

Results

Socio-Demographic Stats of the Respondent

Categories	Variables	Frequency	Percent
Education	HSC or Equivalent	6	5.3
	Undergraduate	38	33.6
	Graduate	15	13.3
	Postgraduate	52	46.0
	Ph.D.	2	1.8
Marital Status	Unmarried	56	49.6
	Married	53	46.9
	Widowed	4	3.5
Age	20-25	49	43.4
	26-30	5	4.4
	30-35	22	19.5
	36-40	2	1.8
	40+	35	31.0
Religion	Muslim	109	96.5
	Hindu	4	3.5
Household Income	Below 10000	3	2.7
	10000-20000	6	5.3
	20000-30000	11	9.7
	30000-40000	23	20.4
	40000-50000	6	5.3
	50000-60000	4	3.5
	60000-70000	12	10.6

	70000-80000	8	7.1
	80000-90000	9	8.0
	90000-100000	7	6.2
	Above 100000	24	21.2
My Business Type	Small	38	86
	Medium	6	14
Able to help relatives financially	Yes	83	73.5
	No	30	26.5
Contribute to family savings	Yes	90	79.6
	No	23	20.4
Uses of Technology	For Education	77	68.1
	For Personal Communication	87	77.0
	For Business	103	86.3
	For Job Purpose	42	37.2
Mode of Use	Mobile Phone	105	92.9
	Personal Computer	36	31.9
	Laptop	75	66.4
Business through the Internet and social media	Facebook	37	92.5
	Instagram	12	30.0
	Own Website	2	5.0
	WhatsApp	22	55.0
	Own Office	3	7.5

In our study, most of the respondent were postgraduate (46%) following around one-third was undergraduate (33.6). About half of the respondents were unmarried, and 46.9% were married. Around 43.4% were in the age group 22-25; also we see one-third were in the age group 40 or more. Almost all the respondents were Muslim (96.5%). Looking at the income, 20.4% were in the range 30000, and 40000, almost similar number showed in the Above 100000 group. Among the respondent who had a business, 86% were small businesses. 73% of the respondent said they were able to help their relative after the economic empowerment. Also, 79.6% said they contribute their family savings. Most of the respondent use technology for their personal communications (77%), business communication (86%) and education purpose (68%). Furthermore, 92.9% were mostly using mobile phones as a mode of internet use. They use the social media platform Facebook for their business purposes (92.5%), following WhatsApp (55%) in the next position.

Assumption Test

Before performing the paired t-test, we need to check the assumptions to construct further references.

Normality Test:

The table below shows the normality test of the data. From the table, we concluded that the data comes from the normal distribution because in all the cases our p-value is greater than 0.05.

Tests of Normality

	Kolmogorov-Smirnov[a]		
	Statistic	df	Sig.
Taking Own Decision (Before)	0.215	113	0.200
Economic Independence (Before)	0.205	113	0.060
Participate in Family Decision-Making Process (Before)	0.208	113	0.058
Values of Decision (Before)	0.282	113	0.702
Taking Own Decision (After)	0.320	113	0.066
Economic Independence (After)	0.225	113	0.073
Participate in Family Decision-Making Process (After)	0.125	113	0.200
Values of Decision (After)	0.214	113	0.500

Homogeneity Test:

The next assumption we need to check the homogeneity of the error variance for the performing paired t-test. From our "Levene's" test of homogeneity, we see that our variable has not significant "Based on Mean," so we cannot reject our null hypothesis and say that the score has an homogeneity of the variance.

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
Score	Based on Mean	8.544	7	896	0.143
	Based on Median	7.823	7	896	0.435
	Based on Median and with adjusted df	7.823	7	859.137	0.111
	Based on trimmed mean	8.201	7	896	0.203

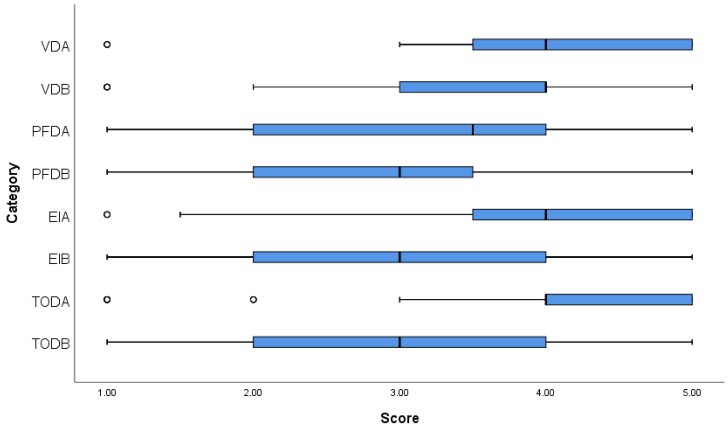
Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: Score

b. Design: Intercept + cat

Paired t-Test:

The results of the study using paired t-test indicated that average scores for total "Taking Own Decision," "Economic



Independence," "Participate in Family Decision-Making Process," and "Values of Decision" were significantly different after exposure to using technology use, as compared to pre-using period. In other words, it seems that technology development and exposure based on women empowerment have been effective in improving the average scores of the aforementioned constructs and total empowerment.

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95 Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Taking Own Decision (Before) - Taking Own Decision (After)	-1.21	1.45	0.14	-1.48	-0.94	-8.86	112	0.000
Pair 2	Economic Independence (Before) - Economic Independence (After)	-1.24	1.23	0.12	-1.48	-1.02	-10.76	112	0.000
Pair 3	Participate in Family Decision-Making Process (Before) - Participate in Family Decision-Making Process (After)	-0.57	1.07	0.10	-0.78	-0.38	-5.74	112	0.000
Pair 4	Values of Decision (Before) - Values of Decision (After)	-0.61	1.16	0.11	-0.83	-0.39	-5.58	112	0.000

Also, from the paired correlation we see that all contracts are statistically significant, and each construct is positively correlated with their pre and post-conditions.

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Taking Own Decision (Before) & Taking Own Decision (After)	113	.239	.011
Pair 2	Economic Independence (Before) & Economic Independence (After)	113	.437	.000
Pair 3	Participate in Family Decision-Making Process (Before) & Participate in Family Decision-Making Process (After)	113	.603	.000
Pair 4	Values of Decision (Before) & Values of Decision (After)	113	.252	.007

Discussion

The findings of the present study show that the empowerment of women through economic independence influences their life standard significantly. Similarly, many research work show that women who were oppressed and lacking the freedom of choice and action to shape their lives got ultimate freedom when they were empowered (Grabe, 2011, Freire, 1970, Kabeer, 1999). Besides, in many studies, women empowerment has been used as an outcome and a goal to be achieved to balance the scales of gender equality and equity (Grabe, 2011). Thus, women who have experienced oppression acquired the ability to make autonomous and strategic life choices based on their personal priorities when they are empowered (Mosedale, 2005, Kabeer, 1999). On the other hand, the use of technology played consequential role in gaining the economic freedom of women which results in their empowerment. In many studies, Information and Communications technology (ICT) is usually seen as a source of socio-economic advancement in the context of global development bridging the digital divide and empower marginalized populations, especially women in underdeveloped countries (Gomez & Camacho, 2011; Islam & Slack, 2016, PHAC, 2016, Manisha & Desai, 2010). In the same way, the potential importance of ICT for women's empowerment through informational freedom is highlighted by numerous focused studies on ICT and women's empowerment (Ahmed et al., 2006; Laizu et al., 2010b; Mehta & Mehta, 2014; Wamala, 2012; Yusuf & Alam, 2011). It should be mentioned that the level of education of the participants is also crucial in this case as it determines the usage level of technology by the women. According to studies, education should have a positive impact on how people view technology (Muney, Adriana, and Lichtenberg, 2002, Philip. 2006) . It is logical to assume that education and technology adoption are positively correlated, particularly when higher levels of education are linked to more technology usage (Eric, and Woessmann, 2009, Krueger, Alan and Lindahl. 2001) . Large-scale earlier research has demonstrated that highly educated workers typically adopt new technology more quickly than individuals with less education (Welch, 1970; Wozniak, 1984, 1987; Krueger, 1993; Muney and Lichtenberg, 2002). It has been found that all aspects of women's' lives get changed as a result of their empowerment. Numerous studies have shown that empowerment of women upholds their rights and women's social and familial roles shift as a result of empowerment (Chitrakar, 2009, Jejeebhoy, 2000). Additionally, women's empowerment encourages them to acquire knowledge, experience, and confidence (Qamar, 2000) which increase female exposure and awareness while providing them with equal possibilities to hold equal positions in society and contribute to the nation's and the country's economy **(**Manisha Desai, 2010). They have gained respect in family and society as soon as they are economically independent. For instance, being able to make household decisions is a good sign of women's dignity and this dignity can be achieved by empowering them (Manisha Desai, 2010). A study by Nadim,, and Nurlukman, (2017), demonstrates that empowered women have a high degree of decision-making power inside their families and in society. Similarly, the responsibilities of women in home decision-making and their control over financial matters were taken into consideration by Malhotra and Mather (1997) as factors of women's empowerment. The findings of this study also show that the empowered women have also started influencing the decisions related to children schooling, food and nutrition of the family members, medical treatment of the family members, family savings, etc. Thus, women's empowerment frequently results in improved spending on housing, food nutrition, and education for the entire family, allowing them to have an impact on family decisions (Thomas, 1990, 1994; Duflo, 2003). Besides, the findings of the present study has also demonstrated that the empowered women has also had earned the rights to take decisions on their personal matters including marriage, education, travelling, shopping, purchasing necessities, vising doctors as well as friends. Consequently, the empowerment of women has also helped them gain social value.

VI. CONCLUSION

There is no limit to the variety of technological effects that can be used to assist empowerment of women, nor are there any restrictions on how ICTs can be incorporated into everyday life of women. This study is ground-breaking and crucial because it highlights in-depth attempts to use ICTs to empower women as well as the necessity of working in tandem with researchers, policy implementers, and policy makers to address the pervasive gender inequities in access to and usage of technology. Future research on the idea of empowerment with ICTs in crucial areas such as outreach, education, lifestyle, health, economic stability, etc. can build on this study's findings.

Author Contributions: Muhammad Hasibul Hasan
Funding: This research received no external funding.
Acknowledgments: The author is grateful to Mr. Sk Obaidullah.
Conflicts of Interest: All authors declare no conflict of interest

REFERENCES

Admiraal JM, van der Velden AW, Geerling J, Burgerhof JG, Bouma G, Walenkamp AM, ... & Reyners AK. Web-based tailored psychoeducation for breast cancer patients at the onset of the survivorship phase: A multicenter randomized controlled trial. Journal of Pain and Symptom Management. 2017;54:4:466–75.

BBS (2021). Population Projection of Bangladesh: Dynamics and Trends 2011-2061. Statistics and Informatics Division (Sid) Ministry of Planning Government of The People's Republic Of Bangladesh

BDHS. (2021). NIPORT-National Institute of Population Research and Training, Mitra and Associates, and ICF International. 2021. Bangladesh Demographic and Health Survey 2021: Key Indicators. Dhaka, Bangladesh, and Rockville, Maryland, USA: NIPORT, Mitra and Associates, and ICF International.

Bennett, L. (2002). Using Empowerment and Social Inclusion for Pro-poor Growth: A theory of Social Change. Working Draft of Background Paper for the Social Development Strategy Paper. Washington: World Bank.

Chew HE, Ilavarasan VP, Levy MR.(2015), Mattering matters: agency, empowerment, and mobile phone use by female microentrepreneurs. Inf Technol Dev.;21(4):523–42.

European Parliament Report (2016). Women's Empowerment and its links to Sustainable Development. Accessed at www.europarl.europa.eu.

Freire, P. (1970). Pedagogy of the Oppressed. (M. B. Ramos, trans.). New York: Continuum.

Grabe S. (2011), An empirical examination of women's empowerment and transformative change in the context of international development. Am J Community Psychol.;49:233–45.

Ghazala Noreen (2010), "Education as a Prerequisite to Women's Empowerment in Pakistan", Journal of Research and Reflections in Education Vol.6, No.1, pp 50 -60

Gold KJ, Normandin MM, Boggs ME. (2016); Are participants in face-to-face and internet

support groups the same? Comparison of demographics and depression levels among women bereaved by stillbirth. Arch Women's Mental Health. 19(6):1073–8.

Greenwood, J., Sshadri, M. and M. Yorukoglu (2005), "Engines of Liberation," Review of Economic Studies 72: 109-133.

Handapangoda WS, & Sisira Kumara A.(2012), From silence to voice: Examining the empowerment potential of mobile phones to women in Sri Lanka: The case of dependent housewives.. https://mpra.ub.uni-muenchen.de/41768/

Hanushek, Eric A., and Ludger Woessmann. (2009). "Do better schools lead to more growth? Cognitive skills, economic outcomes, and causation." IZA DP No. 4575.

Imran Sharif Chaudhry & Farhana Nosheen, (2009), "The Determinants of Women Empowerment in Southern Punjab (Pakistan)", European Journal of Social Sciences, Volume 10, Number 2,

Jehan Qamar, (2000), "Role Of Women In Economic Development Of Pakistan", University of Balochistan Quetta.

Kabeer N. (1999) ;Resources, agency, achievements: reflections on the measurement of women's empowerment. Dev Change. 30(43):435–64.

Krueger, Alan B., and Mikael Lindahl.(2001). "Education for Growth: Why and for Whom?" Journal of Economic Literature 39, no.4 (December):1101-1136.

Lleras, Muney, Adriana, and Frank Lichtenberg. (2002). "The Effect of Education on Medical Technology Adoption: Are the More Educated More Likely to Use New Drugs?" NBER Working Paper #9185.

Lindsay M, Messing JT, Thaller J, Baldwin A, Clough A, Bloom T, ... & Glass N. (2013), Survivor feedback on a safety decision aid smartphone application for college-age women in abusive relationships. Journal of Technology in Human Services.;31:4:368–388.

Luci, A. (2009). Female Labour Market Participation and Economic Growth. International Journal of Innovation and Sustainable Development, 4(2–3), 97–108. https://doi.org/10.1504/IJISD.2009.028065

Manisha Desai, (2010), " Hope n Hard Times: Women's Empowerment and Human Development", United Nations Development Programme Human Development Reports.

Mosedale S. (2005) ;Assessing women's empowerment: towards a conceptual framework. J Int Dev. 17:243–57.

Nadim, J. S., & Nurlukman, D. A., (2017), Journal of Government and Civil Society, Vol. 1, No. 2, pp. 135-157

Nord JH, Riggio MT, Paliszkiewicz J. (2017), Social and economic development through

information and communications technologies: Italy. J Comput Inf Syst.;57(3):278–85

Oreopoulos, Philip. (2006). "The compelling effects of compulsory schooling: Evidence from Canada" Canadian Journal of Economics 39 (February) 22-52.

Potnis D. Culture's consequences: Economic barriers to owning mobile phones experienced by women in India. Telematics Inform. 2016;33(2):356–69.

Roshan Chitrakar, (2009), "Overcoming Barriers to Girl's Education In South ASIA" United Nation Children's Fund (UNICEF ROSA).

Salehi, Isfahani, Djavad.(2000). "Microeconomics of Growth in MENA—the Role of Households." Global Research Project, Global Development Networks

Tyers, A. A. (2012), Gender Digital Divide? Women learning english through ICTs in Bangladesh. In mLearn.;94–100.

United Nations Economic Commission for Europe UNECE (2012). Empowering women for Sustainable development. Accessed at www.unece.org on 22.3.16.

UN-Women (2014). World Survey on the Role of Women in Development: Gender equality and Sustainable Development. Accessed at www.unwomen.org.

Vivakaran MV, Maraimalai N. (2017), Feminist pedagogy and social media: a study on their integration and effectiveness in training budding women entrepreneurs. Gend Educ.;29(7):869–89.

Welch, Finis. (1970). "Education in Production." Journal of Political Economy 78:35-59.

Welch, Finis. (1973). "Education, Information, and Efficiency." NBER Working Paper #1.

World Bank (2011), World Development Report 2012: Gender Equality and Development.

Wozniak, Gregory D. (1984). "The Adoption of Interrelated Innovations: A Human Capital Approach" Review of Economics and Statistics 66: 70-79.

Wozniak, Gregory D. (1987). "Human Capital, Information, and the Early Adoption of New Technology." Journal of Human Resources 22:101-112.