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Original Article

INFORMATION AND COMMUNICATION TECHNOLOGY: A STRATEGY FOR SOCIO-ECONOMIC WELLBEING OF RURAL WOMEN IN ENUGU STATE NIGERIA

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Abstract The focus of this study was to ascertain the influence of information and communication Technology (ICT) skills development on socio-economic well-being of rural women in Enugu State, Nigeria. One research question and one null hypothesis guided this study. The design of the study was a descriptive surgery design. The population of the study was 2,173124 rural women from 14 out of 17 Local Governments Area in Enugu State. The sample size for this study was 3760 respondent using Taro Yamane sampling technique structural questionnaire developed by the researcher was used for the study. The instrument was validated by the three research experts. The reliability co-efficient of 0.78 was obtained.

The finding which emerged from the study revealed that acquisition of ICT skills by rural women is the solution for the advancement of the socio-economic wellbeing of rural women in Enugu state, Nigeria. It was recommended among that government should encourage rural women to enroll in ICT classes and programmes as to eradicate computer illiteracy among them. The paper concluded by recommending that there is an urgent need to improve the representative of women in the use of the new technology to enhance their status.

Keywords: Information and communication technology, strategy, socio-economic, wellbeing, rural women

Introduction:

Information and communication technology (ICT) has become a potent force in transforming social, economic and political life globally. ICT sector remains a buoyant and growing sector for empowerment, a key factor that enhances national development (Ogorjifor, 2018). Advances in ICT are occurring on an incredible scale in many countries that have translated to a definite abundance of wealth and opportunities for the entire world (Olaleye, 2023). Increased access to information is probably the greatest benefit that ICT

can bring if women substantially improve their lives and increase their income.

Information and communication technology (ICT) is the short form of information and communication Technology. ICT refers to all the means, methods and machine that human beings use to collect, store, process and transmit data in different forms (texts, sound and picture) from sources or encoder to the receiver or decoder with the effect (Bisschoff & Govender, 2014). Nkemena (2014) defined ICT as computer based tools used by people to work the information and communication processing needs of an organization. It encompasses the computer, computer hardware and software the network, several other devices (video, audio, macro-electron devices, and so on into common forms (Obiozor & Obidiegwu, 2013). Omodia (2017) defined ICT as range of technologies that are applied in the process of collecting, storing, editing, retrieving and transferring of information and telecommunication gadgets in information process.

Example of ICT resources are: internet facilities, e-mail device, computer system (Personal Computer, and Laptops) fax machine, teleconferencing devices, mobile/cellular phones, electronic organizer, bulletin board system, dictating machine, voice recognition by computer device, photocopies, scanner, printer, microfilm, spiral binding machine, calculator, electronic fund transfer (EFT), telecommunication device, telecommunicating networking machine teleconferencing Device, Video-Tele-conference device, micrograph, software Package like (Computer Assisted learning (CAL), Computer Assisted Testing (CAT), Computer Aided Design (CAD), Drills and Practice, Simulation etc). Omodia posited that ICT skill means having adequate knowledge and ability to operate the above ICT resources (Omodia, 2017).

Nowadays the information available in the World Wide Web (WWW) about agriculture production systems, technology, results from research, new machinery, equipment and products for agriculture) is enormous. For the farmer to benefit from this information he (or she) has to know how to find it in the internet. Free agricultural software or on-line platforms that can interact with the farmer and give him specific information and e-tools useful for its activity are also available for those that can use a computer, a Smartphone or a tablet. Communication technology gives farmers greater control over their access and exposure to information. It enables them to take initiative as information seekers, rather than adopting a passive role as information recipients (Bisschoff & Govender, 2014).

Text messaging is one of the most widely used mobile data service worldwide, and many services or equipment can use this tool to interact with the farmer providing him with real time information. This can be very useful for farm management. Desktop software skills. The use of common word processors and spreadsheets is essential for data management and are becoming an important skill in farming practice, allowing workers to process information collected from different sensors and mapping systems (Omodia, 2017).

Climate change and environmental degradation increase farmers' responsibilities on conservation and environmental management. Farmers need to maintain the productivity of their land while facing extreme weather events, potential water shortages etc. There is a growing need for skilled agricultural workers to understand how environmental sustainability is integral and applicable to their everyday practice (i.e. managing pesticide and other chemical use, reducing carbon dioxide emissions, using renewable energy, and managing water resources) (Nkemena, 2014).

There is a tremendous pace and improvement in ICT field globally and the need for the skills of the ICT work force to keep up with the pace of

technological change is paramount. Empowerment of women means investing in women's rights with legal backing, and moral and financial support to enable women function effectively (Bisschoff & Govender, 2014). The empowerment of women involves assessment of women's needs and designing programmes to address those needs.

ICT sector remains a buoyant and growing sector for empowerment, a key factor that enhances national development. Advances in ICT are occurring on an incredible scale in many countries that have translated to a definite abundance of wealth and opportunities for their entire people (Nkemena, 2014). The author goes on to state that ICTs are complex and heterogonous set of goods, applications and services used for producing, distributing, processing and transforming information, included in this set are the outputs of industries as diverse as telecommunication, television and radio broadcasting, computer hardware and software, computer services and electronic media.

Employment in the ICT sector has continued to grow significantly in recent years. The perception in most countries that ICT sector is a male-dominated industry persists. Male dominated most high- value and income jobs in the ICT sector. The research carried out in both developed and developing countries, revealed classic cases of vertical gender segregation, with women more strongly represented in lower ICT occupations than in higher status, and higher paid areas. The study showed that 15 per cent of ICT managers, and only 11 percent of IT strategy and planning professionals were women (Naila, 2012). Naila further stated that the lack of belief in our female to be engaged in ICT in different areas constituted an obstacle. Burch a gender and information society activist in Latin America, echoed this sentiment. "ICT policy, perhaps even more than other policy areas, is often perceived as an issue reserved for specialists.

It is therefore not often seen by women's organizations or other gender focused groups as something with important development and social implications that they should therefore take on in the frame work of their advocacy initiatives. Obiozor and Obidiegwu (2013) posited that ICT sector was not only seen as an area for specialists, women as well as men regard it as the province of men. The African information society Gender Working Group argued and fell into the trap of saying" "these are not things for us to deal with" hence women are accepting gender stereotypes. In order for women and girls to enter the information ages and for ICT policy to be engendered, women must transcend these attitudinal barriers (Nwabuke, 2014). Observations have shown that girls and women are lagging behind in ICT field as far as getting adequate knowledge is concerned. The society seems to perceive ICT sector as masculine dominated occupation. It is apparent that culturally, certain occupations are preserved of women folk. It seems the women are not keeping pace with ICT but the men are taking upper hands in gaining more access to ICT sector.

The purpose of this paper is to examine ICT usage among women and girls, and the various ICT opportunities that are beneficial to women, and so to come up with strategies that could promote ICT opportunities and subsequently women empowerment.

There are numerous possibilities for information technologies (IT) to improve women's economic activities. Increased access to information is probably the greatest benefit that IT can bring. If women are able to use it productively, they can substantially improve their lives and increase their income.

A great number of women in developing countries, Nigeria in particular engage in running small businesses. The most valuable application of IT for women small business owner is information, accessing information to facilitate their business, generating and disseminating information about it (Omodia, 2017). There are many ways of using the internet to do business, from making contacts and checking prices to displaying goods and entering into contracts.

Women entrepreneurs in developing countries can secure gains from IT with little technical training for instance after an internet workshop for members of the Association for Support to Women Enterprise (ASAFE) in Cameroon Bio-vital. An ASAFE member that manufactures cosmetics made from local herbs and plants used the internet to locate a French company that now buys 80 per cent of her products (Osuji, 2016). Small business enterprise needs information about supply, demand, finance and environment. They tend to reply on informal information from friends and family, which may be in- accurate. Web site can promote information about the business to potential clients, as well as sell products and service. Outsourcing is the relocation of information intensive jobs from high-wage countries to developing countries. Teleworking is remote work in the sense of being remote from the source of the work. In developing countries those working in the jobs, which involve information transfers by telecommunication, are said to be engaged in tele-services. Teleworking and tele-services are the areas of the new economy with the largest growth potential for developing countries. The international labour organization (ILO) predicts that there will be 12 Million new jobs in IT enabled service in developing countries in the next decade, as employers look to developing countries for cost advantages over United States or European employees. Teleworking is a mode of working rather than a type of employment, whereby IT allow work to be carried out at sites away from a company's principal premises (Robert, 2016).

The employment generation potential of the data processing area is large. Given the high skills requirements for software programming, the lower ends of teleworking such as data entry are more realistic possibilities for large numbers of women in developing countries. Women are trained for processing of forms largely for work in fields such as insurance, health, banking, law, surveys, and taxes that are the lifeblood of the service industry. These are activities that are largely unaffected by the current economic downturn that has hit the global technology sector as a whole.

According to Mauch (2014) information and communication technology can empower rural women to participate in decision making, exchange ideas with others in developed and developing countries and improve the quality of life of the Africa. IT has great potential to help meet the needs of rural women farmers and to benefit rural communities. IT could provide women farmers with guidance on where and when to sow, harvest and market their produce to avoid having to off-load their goods at throw- away, prices. Women play important role in agriculture which is the major industry of most developing countries. Women agriculturists need information on improved farming technologies, access to credit, agricultural inputs, transportation systems, product potentials, new and environmentally sound production techniques and practices, new markets, food preservation and storage, trade laws, trend in food production, demand and processing. Women farmers could improve their productivity with information on improved seed, alternate crops, and weather.

ICT job has created avenue for jobs. Women could take up ICT job in various forms ranging from data

entry, cyber café operators, technicians, programmers, web designers, computer engineers, data processing and analysis, and computer operators. These job opportunities are for both men and women. This is the age when ICT has created numerous job opportunities in the midst of non-ICT job scarcity.

Technology is providing women with data concerning diseases and cases of treatment and clinical counseling on the web. IT has apparently reduced anxiety about certain health issues which can be easily accessed on the internet (Adelore & Olomukoro, 2015). ICT has apparently been useful for family health information. Information that are of paramount advantage to women concerning: childbirth, family planning, children nursing and caring, breast feeding, and women clinical cases are readily available through information technology.

ICT offers invaluable tools for women empowerment through education, particularly literacy education, continuing education, non-formal education, and lifelong education, all which combat illiteracy. IT can also empower women through codification and dissemination of their indigenous knowledge. Traditionally women have been the incubators and transmitters of knowledge relating to food processing, preservation, and storage, the growing of specific crops, nutrition, and health. Much of the knowledge that women in rural areas possess have scientific value which IT can help to organize and transfer this knowledge to outside communities that might benefit from (Bruce & Demasson, 2017).

The use of mobile phone has impacted rural living, entrepreneurship and job search. Mobile phone reduces the costs of running business and in some cases, the technology could even enable a user to start one. A good example of this would be the case of the women in Pakistan who have been able to start small business offering beauty and hairdressing services, without having to shell out moving for setting up beauty salons. Client can easily contact them via their appointment and enjoy their services. Mobile services are being used to spread located, generated and locally relevant educational and health information. In case of severe drought, floods, wars or weak economies, mobile phones can be used to keep in touch with one's home community. Mobile operators have proven to be incredibly helpful in disaster relief efforts by providing emergency related communication infrastructure.

ICT has impacted on transport substitution. The improvement in information flow between the buyers and sellers make for a more effective bartering of information without travelling. This is particularly significant in rural areas where traders need to travel to urban areas simply to check for whether demand for their products exist before leaving their rural homes. The use of mobile phones can correct market inefficiencies, therefore regaining the balance in the supply market. The information and services that could be available through mobile phone would prevent exploitation by middlemen or traders, reduce information gaps, save costs and time, and strengthen access of services providers to rural people (Bruce & Demasson, 2017).

The impact of ICT on our daily lives has been steadily increasing. According to Storey and Sission (2013), computers and the internet cannot be dismissed from the contemporary scene; even the importance of mobile phones cannot be over emphasized. Thus it is impossible to imagine life today without digital media. In an empirical research on the use of ICT among entrepreneurs in industry in South –West Nigeria revealed that women entrepreneurs under-utilized ICT infrastructure, and system in the production and marketing of garments. It further revealed that the

use of radio and television for marketing and advertisements is under-utilized, due to the fact that it is expressive to explore. It also showed that most of the women producers in the garment industry lack computer literacy.

Nigerian women entrepreneurs' use of ICT infrastructure and systems is limited and even the ones in use are not widely explored for business development (Olomukoro, 2012) Apama and Andong (2018) revealed that the usage of ICTs by Nigerian women academics showed that the majority of women academics were ICT literate. They made use of computers, internet, telephones, mobile phone and photocopiers while ICT facilities such as scanners, facsimiles, video conferencing and teleconferencing were not used. It was also revealed that ICT were used to perform data collection, statistical analysis, word processing, information search, storage and retrieval of materials, electronic communication, search and preparation of course materials. Majority of women academic affirmed that they had unequal access to the use of ICTs in their institutions in comparison with their male counterparts.

Most women in developing countries who use ICT use it at work. Except in upper income classes, home access to a computer and the internet is not a phenomenon. Users of ICT at work, use it as a tool of production, in other words ICTs are used in routine office work, data entry, manufacturing, computer industry jobs, programming, and related work. While some use ICT as a tool of communication in creating and exchanging information. E-mail is the major ICT application that women's organizations and individual women in developing countries use (Hanushek, 2013) as they are strategizing to profer better alternatives.

Information and communication technology play vital roles in enhancing the socio-economic well-being of the rural women through different strategies. These strategies differ largely according to the individual needs, problems or circumstances of these rural women. Though there is no specific strategy for ICT skills development. Strategy is still important because the resources available to achieve goals are usually limited. Strategy generally involved setting goals and priorities, determining action to achieve the goals and mobilizing resources to execute the actions. (Freedman Lawrence, 2013). Freedman Lawrence defined strategies as the art of creating power.

Wellbeing simply means the state of being comfortable, healthy, happy or successful. It is concerned with the welfare of individual. In Enugu State, the socio-economic well-being of rural women is not sound because of perceived number of factors that hinder women from accessing socio-economic fortunes and becoming empowered. Most rural women in the area find it difficult to make ends meet and they are not educationally empowered. This has raised question or concerns on wether it could be attributed to cultural factors or socio-cultural factors such as poverty, social inequality and inadequate social support that hamper women socio-economic development, some societal inherited traditions that prevent women from inheriting land both from their fathers' or husbands thereby limiting their access to land or could it be attributed to illiteracy or poor education. It is possible that this deterioration in the development of business women could reverse if adequate strategies are employed.

Regrettably, in Enugu State, Nigeria, the socio-economic well-being of rural women which invariably gives women financial capability has been in a state of dilemma. This ugly situation seems to have led to under performance in socio-economic activities. Rural women are women who reside or live in the rural areas. According Ejim (2020), rural women are active agents of socio-

economic change and environmental conservation. But more often than not they are confined to the roles of a homemaker, caregiver, farmer and consumer. Rural women experience socio-economic problems in the state, ranging from lack o financial empowerment which usually lead to underperformance in socio-economic activities.

Moreso, women are marginalized, harassed and relegated to the background in the areas of social, economic and political participation which usually deprive the women from contributing their quota in the society thereby creating gender inequality. There is need to encourage these rural women to create impact to their family and society as well and to achieve this, there is need for ICT skill development. ICT skills development among other things plays vital roles in enhancing the socio-economic well-being of the rural women. Against this background, the problem of this study is therefore, to investigate how ICT skills development of rural women impact their socio-economic well-being in Enugu State?

Against this background, it become expedient for the researcher to undertake an empirical research on information and communication technology, a strategy for socio-economic well-being of rural women in Enugu State, Nigeria.

Purpose of the Study

The major purpose of this study was to ascertain the influence of ICT skills development on socio-economic well-being of rural women in Enugu State, Nigeria.

Research Question

The following the research guided the study.

What is the influence of ICT skills development on socio-economic being of rural women in Enugu State Nigeria?

Hypothesis

A null hypothesis was formulated to guide the study. It was tested at 0.05 level of significance.

There is no significant difference between the mean ratings of younger women (aged 18-35) and older rural women (aged 36 and above) on the ICT skills development.

Research method

Descriptive survey research design was adopted for this study. Descriptive survey research, focuses on people, the vital facts of people, their beliefs, opinions, attitudes, motivation and behaviours (Abuka, 2014). Descriptive survey research design is appropriate for the study because it tried together opinion through questionnaire from rural women on the influence of vocational skill development on socio-economic wellbeing of rural women in Enugu State. The population of the study consists of 2,173,124 rural women from 14 out of 17 Local Government Area in Enugu State. The sample size for the study was 3760 respondent using Taro Yamane sampling technique. Structured questionnaire developed by researcher was used for the study. The instrument was validated by three research experts, two from Adult and Continuing Education department and one expert, in Measurement and Evaluation unit of the department of Mathematics and Computer Education, all from Faculty of Education, ESUT. A reliability coefficient of 0.78 was realized using cronbach alpha formular. A total of 376 copies out of 4000 copies of the instrument correctly filled and returned were used for the study. The return rate of the instrument distributed was 94 percent. Data collected for the study was analyzed using mean with standard deviation answering the research question and t-test statistics for testing null hypothesis at 0.05 level significance.

The analysis was computer based with the use of the statistical package for social science (SPSS) to analyze the respondent's ratings. The decision rule for the Mean (x) was based on the principles of mean, 2.50 gotten by 4+3+3+1 = 2.50. any item

with a score less than 2.50 was considered not required any item mean of 2.50 was considered not required any item mean of 2,50 and above was considered required. The level of acceptance for the research question is 3.27 which indicate that acquisition of ICT skills has great impact on the socio-economic wellbeing of rural women in Enugu State, Nigeria.

Null hypothesis was rejected when the calculated value is equal to or greater than critical value but if less than the critical value, null hypothesis was not rejected. The relatively low standard deviation shows that the respondents did not differ remarkably in their responses to the items while high standard deviation indicates divergent opinions.

Research Question

The following research question guided the study:

What is the influence of ICT skills development on socio-economic well-being of rural women in Enugu State, Nigeria?

Table 1: Mean with standard deviation of the Respondents on the Influence of ICT skills on socio economic well-being of Rural Women

S/N	Acquisition of vocational skills has;	X	SD	Remarks
1	Enhanced my skill in word processing	3.20	0.94	Agree
2	Improved my web designing skills	3.24	1.07	Agree
3	Enhanced my skills in programming	3.35	1.06	Agree
4	Improved my skills in computer application	3.25	1.08	Agree
5	Enhanced my skills in internet	2.77	1.04	Agree
6	Enhanced my skill in data processing	3.07	10.6	Agree
7	Enhanced my skill in operation of mobile phones	3.49	1.10	Agree
8	Improved my skills in networking	3.37	0.99	Agree
9	Improved my skills in operation of photocopying	3.48	1.04	Agree
10	Enhanced my skills in operation of my cyber cafe	3.47	0.94	Agree
	Cluster mean and standard deviation	**3.27**	**1.03**	**Agree**

The data analyzed in Table 1 revealed a cluster mean score of 3.27. This implies that the respondents were generally of the view that acquisition of ICT skills has great impact on the socio economic well-being of rural women in Enugu State. The cluster standard deviation of 1.03 indicated that the respondents have consensus opinion on the issues.

Hypothesis

The following null hypothesis at 0.05 level of significance to guide the study:

Table 2: The t-test Analysis of mean Ratings of the Respondents on the influence of ICT skills Development

S/N	ICT Skills	Younger women		Older women		t-cal	p-value	Remks
		$\bar{X}_2$	SD	$\bar{X}_2$	SD			
1	Enhanced my skill in word processing	3.25	0.75	3.15	1.12	-1.75	0.37	NS
2	Improved my web designing skills	3.35	1.01	3.12	1.13	0.00	0.86	NS
3	Enhanced my skills in programming	3.54	1.02	3.15	1.09	-0.43	0.99	NS
4	Improved my skills in computer application	3.35	1.14	3.15	1.02	-0.39	0.13	NS
5	Enhanced my skills in internet	2.77	1.17	2.77	0.91	-1.66	0.11	NS
6	Enhanced my skill in data processing	3.12	1.05	3.02	1.07	-1.24	0.75	NS
7	Enhanced my skill in operation of mobile phones	3.64	1.08	3.35	1.12	-0.82	0.94	NS
8	Improved my skills in networking	3.41	1.00	3.32	0.97	-1.41	0.13	NS
9	Improved my skills in operation of photocopying	3.45	1.09	3.50	0.98	-1.31	0.39	NS
10	Enhanced my skills in operation of my cyber cafe	3.61	0.95	3.33	0.92	-0.76	0.68	NS

Ns = Not significant, S = Significant

Results in table 2 revealed that the identified 10 ICT skills had their p-values ranged from 0.11 to 0.99 which were greater than 0.05 at 374 degree of freedom. This indicated that younger women and older rural women had uniform opinions on the influence of ICT skills development on socio economic well-being of rural women in Enugu State. Thus, the null hypothesis of no significant difference was upheld.

Influence of ICT skills Development on Socio-Economic Well-being of Rural Women

Data analyzed with regard to research question two indicated that the acquisition of ICT skills has great impact on the socio economic wellbeing of rural women in Enugu state. The ICT skills development include; skills in word processing, web designing, programming, computer appreciation, internet, data processing, operation of mobile phones, networking, operation of mobile phones, networking, operation of photocopying and operation of Cyber Café. This finding is interesting considering the relevance of ICT skills on the socio economic well-being of rural women. This finding collaborates with the Olomukoro (2015) who noted that the acquisition of ICT skills offers invaluable tools for women empowerment and sustainable development of the nation at large. In addition, Ogorjiofor (2018) stated that acquisition of ICT skills by women will expose them to job opportunities, increase their creative abilities and enable the women to start up their own businesses.

However, the corresponding hypothesis revealed that younger and older rural women had uniform opinions on the influence of ICT skills on socio-economic well-being of rural women. This is supported by Olufunike and Adeola (2019) who noted that urban and rural women did not differ significantly in their opinions on the effect of ICT skills on the empowerment of women in Ogun State.

Discussion of findings

The findings of the study are discussed below, according to the research questions and hypothesis that guided the study

Data analyzed with regard to research question two indicated that the acquisition of ICT skills has great impact on the socio economic well-being of rural women in Enugu state. The ICT skills development include; skills in word processing, web designing, programming, computer appreciation, internet, data processing, operation of mobile phones, networking, operation of mobile phones, networking, operation of photocopying and operation of Cyber Café. This finding is interesting considering the relevance of ICT skills on the socio economic well-being of rural women. This finding collaborates with the Olomukoro (2015) who noted that the acquisition of ICT skills offers invaluable tools for women empowerment and sustainable development of the nation at large. In addition, Ogorjiofor (2018) stated that acquisition of ICT skills by women will expose them to job opportunities, increase their creative abilities and enable the women to start up their own businesses.

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Conclusion

The following conclusion were drawn the study shows that rural women in Enugu State, Nigeria need the acquisition of ICT skills.

ICT skills has great impact on the socio-economic well-being of rural women in Enugu State, Nigeria. ICT has proven to be increasingly fundamental for social and economic development. The implication is that the acquisition of ICT skills such as word processing, designing, programme computer appreciation, internet and operations of mobile phone skills among several others could make rural women marketable net only locally but internationally as welling. This advice will be best utilized if the women, who formed the country's largest reserve of a yet-to-be- fully-tapped labour, could be empowered and energized to pick up the gauntlet, from basic ICT skills to high-end certification skills.

Recommendations

Consequent upon the findings of this study and conclusions drawn, the researcher proffers the following recommendation.

- Government should encourage rural women to enroll in ICT classes and programmes as to eradicate computer illiteracy among them.
- Government should equip rural women centers with ICT materials and facilities such as computers, internet, constant light, laptops, phones and other accessories to facilities their business, disseminate information and generate income.
- There is an urgent need to improve the representatives of women in the use of the new technology to enhance their states. This will increase their usability of women in the society as well as eliminate discriminative tendencies against them.

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