The Impact of Education on the Use of ICT by Small and Medium Scale Entrepreneurs in Zaria and Kaduna.

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ABSTRACT

This paper presents the impact of education on the use of ICT facilities by SMEs in Zaria and Kaduna. With the aid of response data acquired using questionnaire aided by simple percentages statistics, the distributions of the entrepreneurs' responses were analyzed. Chi-square distribution at 0.05 significant level was also used to test the hypothetical statement. Results showed that most entrepreneurs in Zaria and Kaduna are secondary school leavers, and a majority of them use GSM for business transactions and less of the internet. The results of the hypothesis test show that there is no significant difference between Zaria and Kaduna in the availability of ICT facilities to the business entrepreneurs. Also, there is no significant difference in the availability of ICT facilities between entrepreneurs of various levels of educational qualifications in Zaria and Kaduna.

(Keywords: information communication technology use, ICT, Zaria, Kaduna, Nigeria, education, technology)

INTRODUCTION

Information Communication Technology (ICT) is the processing and maintenance of information, and the use of all forms of computers, communication networks and mobile technologies to mediate information. An understanding of ICT and education is vital in keeping abreast of rapidly changing technologies (Iloanusi and Osuagwu, 2009).

ICT has become indispensable for all kinds of business functions. In fact, ICT's capability is essential to participation and engagement in modern society. The development in telecommunications has impacted enormously on the applications of ICTs and their uses in small scale businesses. ICT can be used to find, develop, analyze, and present information, as well as to model situations and solve problems. It enables rapid access to ideas and experiences from a wide range of people, communities and cultures, and it is a powerful force for change in any society.

Small and Medium-scale Enterprises (SMEs) are often the main driver for a country's economic growth. But as the number of SMEs increases, competition increases, which often results in a decrease in prices, customer base, or both. This in turn will erode existing profits, creating less incentive for people to start SMEs, greater competition and resulting to a slower rate of growth for SMEs.

SME operators are often at a loss when the need arises to choose the most appropriate and cost efficient product. Larger firms, for example in the manufacturing industry, in both the import and export markets, are faster than SMEs in improving their products, processes, promotion, or distribution channels, because of their level of their ICT compliance. This is the problem of the Digital Divide. When firms in developed countries adopt ICT, firms in Nigeria especially in Zaria and Kaduna may lose out on the competition. This in turn can slow the growth rate of SMEs and hurt the economy as a whole. ICT can thus play a very important role because it can help SMEs to create business opportunities and combat pressures from competition.

Appropriate ICT can help SMEs cut costs by improving their internal processes, improving their product through faster communication with their customers, and better promoting and distributing their products through online process. In fact, ICT has the potential to improve the core business of SMEs in every step of the business process. With the use of ICT, weak players in the economy can be empowered by provision of information, communication and knowledge they could not access before. This enhances the

competitiveness of SMEs and can enable them establish their presence on the Internet and use it to communicate with suppliers and customers, to search for business information and to advertise their products (Okwuonu, 2010).

ICT AND EDUCATION

ICT comprises a diverse set of technological tools and resources which enables it to create, disseminate, store and manage data and information required by users. ICT tools such as television, radio and telephone have proven their effectiveness in promoting development. According to the United Nations (UN), the emergence of computers, internet and wireless communication technology along with powerful software for processing and integrating text, sound and video into electronic media, comprises modern ICT (UN, 2002). Educational factors are one of the factors that affect the information seeking behavior of users. The educated and uneducated may have different methods of seeking information. The educated individual or entrepreneur most at times resort to formal means while the uneducated one may depend more on informal methods (Bikika, 2002) .

Limited ICT education or literacy of SME owners sometimes also hinders their ability to adopt it as formal education is a cardinal point in effective and efficient use of ICT as the ability to make the choice of technology and understand the concrete benefits it can bring to their businesses. Many SME operators are unfamiliar with operating a computer as a result of their level of education and become skeptical of the benefits and value it offers to their businesses having the notion that ICT is only for larger companies even when they have the will and financial resources to integrate ICT into their core business(Okwuonu, 2010).

Okore (2004) posits that, on enhancing women's productivity in Nigeria through the use of ICT, ICT helps to open opportunities for women by improving their access to the various kinds of information they need; providing them with channels such as communication network that would offer information about input and market prices.

Zijp (1994) stated that ICT has become a sine-qua-non for human development and progress, especially now that access to information has become a key to capacity building. Jon Nwakalo *et al*. (2002) posits that ICT has the capacity to expand opportunities for trade, support the poor especially women in production, storage and marketing of farm or non-farm products, create employment,, provide training and education to women, close income gaps and improve the quality of life. It also improves the business prospects of the rural enterprises by giving them better access to market information, improved production technology and more effective marketing systems.

JUSTIFICATION OF THE STUDY

This study looks at the Impact of education on the use of ICT by small and medium Scale entrepreneurs In Zaria and Kaduna. Zaria and Kaduna has a high concentration of business entrepreneurs especially SMEs which include business centres, poultry farms, leather wears, etc. The business environment generate a vast amount of information from competitors, suppliers, consumers, the government and other sources especially with the establishment of tertiary institutions within Zaria and Kaduna metropolises. The impact of education on the use of ICT on business information needed to be investigated on in Zaria and Kaduna.

Previous observations show that many businesses in Nigeria rise and fail and this has become a course for worry. This perhaps might be connected to the fact that the SMEs in Zaria and Kaduna are not adequately enrolled into formal education which can go a long way to enhance the use of ICT to enhance their businesses. As a result, research questions such as, what is your educational qualification, and what type of ICT facilities are available in running your business were asked. Also, two hypothesis is given to evaluate this study statistically which states "There is no significant difference between Zaria and Kaduna in the availability of ICT facilities to SMEs" and "There is no significant difference in availability of ICT facilities between SMEs entrepreneurs of various levels of educational qualification in Zaria and Kaduna".

METHODOLOGY

The method of research adopted is survey method. This method is considered appropriate because it involves gathering of data on the target population. Ndagi (1984) posits that survey

method is concerned with the collection of data for the purpose of describing and interpreting an existing conditions, prevailing practice, beliefs, attitudes or ongoing process, etc. The method allows the researcher to gather information on a targeted population without undertaking a complete enumeration.

The researcher administered four hundred and fifty (450) questionnaires in Zaria and Kaduna respectively. At the end of the exercise, a total 376 questionnaires from Zaria and 370 questionnaires from Kaduna were adequately filled and used for the data analysis.

DATA ANALYSIS

Based on the arrangement of the data, the frequencies of some of the responses were shown in tables, chart forms and for the hypotheses, chi-square tests were carried out in order to accept or reject them hence give answers to the research questions.

DISTRIBUTION OF RESPONDENTS' QUALIFICATION IN ZARIA AND KADUNA

From the analysis of the data presented in Table 1a, it could be seen that majority 150 (40%) of respondents are graduate in Zaria. This could be attributed to high school density in Zaria. As most of the entrepreneurs could enroll for weekend or part time schools and some of the graduate stay back after school to delve into business as white collar jobs are not easy to come by. But in Kaduna, secondary leavers have the highest frequency of 120 (32%) as the numbers of tertiary institutions in Kaduna are not as many as those in Zaria.

FREQUENCY DISTRIBUTION ICT FACILITIES AVAILABLE IN SMEs BUSINESS IN ZARIA AND KADUNA

Majority of the respondent as observed in Table 1b with 245 (65%) in Zaria and 237(64%) in Kaduna affirmed that their GSM phones are most effective in information communication in business. The reason for this high proportion could be due to the availability of the system and the robust GSM network in the country. Similarly, the use of internet in business information communication is still low with 29(8%) in Zaria and 44(12%) in Kaduna.

Ramsey et al. (2003) noted that to survive in today's competitive business world, small and medium business it requires access to accurate and relevant information both at start-up and during day to day operations. And for this to be achieved, the use of internet cannot be neglected. This of course affects business as the world is changing fast, and any business that does not meet up with the changes can not go far in meeting the growing needs of its customers. 63(17%) and 54(15%) make use of computer in Zaria and Kaduna.

Table 1a: Distribution of Respondents' Qualification in Zaria and Kaduna

Category of Data	Response Options	Zaria			Kaduna			Total	% on Grand Total
		Frequency	% on data Category	Zaria %	Frequency	% on data Category	Kaduna %		
Qualification	Primary School Leavers	12	3%	52%	11	3%	48%	23	3%
	Secondary School Leavers	138	37%	53%	120	32%	47%	258	35%
	Graduates	150	40%	62%	91	25%	38%	241	32%
	Post Graduates	32	9%	34%	63	17%	66%	95	13%
	Vocation	44	12%	34%	85	23%	66%	129	17%
	Total	376	100%		370	100%		746	100%

Table 1b: Frequency Distribution of Channels of Communication, ICT Facilities in Zaria and Kaduna.

Category of Data	Response Options	Zaria			Kaduna			Total	% on Grand Total
		Frequency	% on Category	Zaria %	Frequency	% on Category	Kaduna %		
ICT Facilities Available in the Businesses	Internet	29	8%	40%	44	12%	60%	73	10%
	Computer	63	17%	54%	54	15%	46%	117	16%
	Scanners	6	2%	35%	11	3%	65%	17	2%
	Digital Camera	18	5%	51%	17	5%	49%	35	5%
	CD. Rom	15	4%	68%	7	2%	32%	22	3%
	Handset	245	65%	51%	237	64%	49%	482	65%
	Total	376	100%		370	100%		746	100%

The null hypotheses stated were framed for each of the towns (Zaria and Kaduna), respectively, for detailed statistical analyses based on the construct for tests and decisions. That is, each of the hypotheses addresses the responses in Zaria and Kaduna, respectively.

H02a: "There is no significant difference between Zaria and Kaduna in the availability of ICT facilities to small scale entrepreneurs".

From the Table 2a of the critical values, the critical value of Chi-Square at α = 0.05 and a d.f. = 5 is 11.07. The calculated Chi value of 8.27 is less than the chi-square critical (11.07). Therefore the hypothesis of independence on type of business must be accepted. That is, the chi-square value (8.27) with degree of freedom (5) is feasible at probability of 0.142, which is more than 0.05 with which the hypothesis was proposed. Therefore the H02a is accepted.

This implies that there is no difference between Zaria and Kaduna in the in the availability of ICT facilities to the small and medium scale business entrepreneurs. The entrepreneurs in the two locations receive equal, have equal opportunities in the acquisition of the ICT facilities which means that poor performance in business information acquisition and management is most probably due to the other factors and not on the availability of the facilities. Although Kaduna is more of a commercial town than Zaria and therefore is expected to have sufficient supply of these facilities because the most business entrepreneurs in the town are dealers on these facilities.

Zaria on the other hand equally has several tertiary institutions and is therefore populated by students and intellectuals who consistently need and use these ICT facilities. Table 2a shows that in the two locations, GSM is most available ICT facility to the entrepreneurs. The table also shows that for the two towns the second and third most available ICT facilities available to the entrepreneurs are computers and internet facilities. Therefore, the availability of ICT facilities in Zaria and Kaduna is relatively similar.

H03a: "There is no significant difference in the availability of ICT facilities between entrepreneurs of various levels of educational qualification in Zaria".

From the Table 3a of the critical values, the critical value of Chi-Square at α=0.05 and a d.f. = 20 is 31.4. The calculated Chi value of 21.7972 is less than the chi-square critical (31.4). Therefore the hypothesis of independence on type of business is accepted. That is, the chi-square value (21.797) with degree of freedom (20) is feasible at probability of about 0.351616 which is more than 0.05 with which the hypothesis was proposed.

Therefore the H03a is accepted. This implies that in Zaria, there is no difference between various levels of educational qualifications in the availability of ICT facilities to small and medium scale entrepreneurs. In other words, the ICT facilities are equally available to the entrepreneurs in Zaria. There should therefore be no excuses for underutilization of the ICT facilities in Zaria between entrepreneurs based on their differences in educational qualification.

Table 2: Calculation of Chi-Square (χ^2) from the Contingency of Zaria and Kaduna and the Availability of ICT Facilities to the Business Entrepreneurs in the Towns.

Available ICT Facility	ZARIA			KADUNA			TOTAL
	F_o	F_e	$\frac{(Fo-Fe)^2}{Fe}$	F_o	F_e	$\frac{(Fo-Fe)^2}{Fe}$	
Internet	29	36.79357	1.650823	44	36.20643	1.677593	73
Compute.	63	58.97051	0.275338	54	58.02949	0.279802	117
Scanners	6	8.568365	0.769866	11	8.431635	0.782351	17
Digital Camera	18	17.64075	0.007316	17	17.35925	0.007435	35
CD ROM	15	11.08847	1.379816	7	10.91153	1.402192	22
Handset	245	242.9383	0.017496	237	239.0617	0.01778	482
Total			4.100655			4.167152	746

Key: F_o = Observed Frequency F_e = Expected Frequency Calculated χ^2 = 8.267808
Degree of Freedom (d.f.) =5 Calculated α value = 0.142081

Table 3a: Calculation of Chi-Square (χ^2) from the Contingency of Availability of ICT Facilities between SMEs Entrepreneurs of various level of Educational Qualification in Zaria.

Available ICT	Primary School			Secondary School			Graduates			Post Graduates			Vocations			Total
	F_o	F_e	$\frac{(Fo-Fe)^2}{Fe}$	F_o	F_e	$\frac{(Fo-Fe)^2}{Fe}$	F_o	F_e	$\frac{(Fo-Fe)^2}{Fe}$	F_o	F_e	$\frac{(Fo-Fe)^2}{Fe}$	F_o	F_e	$\frac{(Fo-Fe)^2}{Fe}$	
Internet	0	0.93	0.926	13	10.64	0.522	13	11.57	0.177	2	2.47	0.089	1	3.39	1.688	29
Computers	1	2.01	0.508	22	23.12	0.054	30	25.13	0.943	4	5.36	0.346	6	7.37	0.255	63
Scanners	0	0.19	0.191	3	2.20	0.289	1	2.39	0.811	1	0.51	0.469	1	0.70	0.126	6
Digital Camera	0	0.57	0.574	2	6.61	3.212	12	7.18	3.234	1	1.53	0.185	3	2.11	0.379	18
CD Rom	1	0.48	0.568	3	5.51	1.140	5	5.98	0.162	3	1.28	2.327	3	1.76	0.883	15
GSM	10	7.82	0.608	95	89.92	0.287	89	97.74	0.781	21	20.85	0.001	30	28.67	0.062	245
Total	12		3.375	138		5.504	150		6.108	32		3.416	44		3.393	376

Key:F_o = Observed Frequency F_e = Expected Frequency Calculated χ^2 = 21.7972
Degree of Freedom (d.f.) = 20 Calculated α value = 0.351616

Table 3b: Calculation of Chi-Square (^{X2}) from the Contingency of Availability of ICT Facilities between SMEs Entrepreneurs of various levels of Educational Qualification in Kaduna.

Available ICT	Primary School			Secondary School			Graduates			Post Graduates			Vocations			Total
	F_o	F_e	$\frac{(Fo-Fe)^2}{Fe}$	F_o	F_e	$\frac{(Fo-Fe)^2}{Fe}$	F_o	F_e	$\frac{(Fo-Fe)^2}{Fe}$	F_o	F_e	$\frac{(Fo-Fe)^2}{Fe}$	F_o	F_e	$\frac{(Fo-Fe)^2}{Fe}$	
Internet	0	1.31	1.308	10	14.27	1.278	12	10.82	0.128	11	7.49	1.643	11	10.11	0.079	44
Computers	1	1.61	0.228	19	17.51	0.126	13	13.28	0.006	9	9.19	0.004	12	12.41	0.013	54
Scanners	0	0.33	0.327	0	3.57	3.568	6	2.71	4.012	1	1.87	0.407	4	2.53	0.859	11
Digital Camera	0	0.51	0.505	5	5.51	0.048	4	4.18	0.008	3	2.89	0.004	5	3.91	0.307	17
CD Rom	0	0.21	0.208	0	2.27	2.270	3	1.72	0.949	1	1.19	0.031	3	1.61	1.205	7
GSM	10	7.05	1.239	86	76.86	1.086	53	58.29	0.480	38	40.35	0.137	50	54.45	0.363	237
	11		3.815	120		8.375	91		5.583	63		2.226	85		2.825	370

Key:F_o = Observed Frequency F_e = Expected Frequency Calculated χ^2 = 22.8251
Degree of Freedom (d.f.) = 20 Calculated α value = 0.297466

H03b: "There is no significant difference in the availability of ICT facilities between SMEs entrepreneurs of various levels of educational qualifications in Kaduna".

From the Table 3b of the critical values, the critical value of Chi-Square at α=0.05 and a d.f. = 20 is 31.4. The calculated Chi value of 22.83 is less than the Chi-square critical (31.4). Therefore the hypothesis of independence on type of business is accepted. That is, the chi-square value (22.83) with degree of freedom (20) is feasible at probability of about 0.298 which is more than 0.05 with which the hypothesis was proposed. Therefore the H03b is accepted.

This implies that also in Kaduna, there is no difference between various levels of educational qualifications in the availability of ICT facilities to small and medium scale entrepreneurs. In other words, the ICT facilities are equally available to the entrepreneurs in Kaduna. There should therefore be no excuses for underutilization of the ICT facilities in Kaduna between entrepreneurs based on their differences in educational qualification.

CONCLUSION

There is no significant difference between Zaria and Kaduna in the availability of ICT facilities to the business entrepreneurs. There is no significant difference in the availability of ICT facilities between entrepreneurs of various levels of academic qualifications in Zaria and Kaduna. Most of the entrepreneurs are secondary school leavers. To encourage SMEs to adopt ICT, efforts first need to be concentrated on convincing top management that implementing ICT can improve their business, whether through cost savings or enabling expansion to new markets. This is because these managers determine the overall strategy of the firm, and they make the decision whether or not to adopt ICT.

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