Curriculum re-engineering: Implications for technological empowerment and job creation tendencies among secondary school students in Cross Rivers State, Nigeria

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Abstract
This study examined curriculum re-engineering, technological empowerment and job creation tendencies among secondary school students. The aim was to investigate the extent to which curriculum re-engineering is likely to promote technological empowerment and enhance job creation tendencies among secondary school students. Exploratory survey research design was adopted for the study, 2 research questions were raised to direct the study. The population of the study comprised all the 281 public secondary schools in Cross River State. Multi-stage sample procedure was used to select 9 public secondary schools as sample schools for this study. The instrument for data collection was a self-structured questionnaire titled "Curriculum Re-engineering for Technological Empowerment and Job Creation Tendencies Survey (CRTEJTS). The CVI of the instrument ranged between 0.72 and 0.87, while the reliability estimates of the research instrument ranged from .82 and .89. Descriptive statistics (simple percentages, mean and standard deviation) were used to answer the research questions. The result of the study revealed that curriculum re-engineering is likely to promote technological empowerment among secondary schools students and arouse job creation tendencies in them. It was therefore recommended that secondary school curriculum should re-organized to ensure full application of ICT tools in the teaching and learning process, and hat teachers and students should be allowed to explore all available e-learning platforms in the process of teaching and learning, as this will empower students technological and arouse job creation attributes among them.

KEYWORDS: Curriculum re-engineering, technological empowerment, job creation, job creation tendencies, self-efficacy, self-reliance

Introduction

The productivity and viability of any economy is dependent on the extent to which the population is mobilized to take up economic opportunities and engage in productive activities meant to boost the Gross Domestic Product of the country. One of the common economic problems associated with developing countries of the world is youths' unemployment. No society can attain any meaningful growth and development when its teeming youth population are not gainfully engaged in productive activities. This is because the more youths are idle in any society, the more they tend to involve in anti-developmental activities, and these activities are detrimental to the growth and development process of society as they tend to disrupt economic activities and increase the level of social unrest among the populace. It means that effective delivery of ICT-oriented skill-based education in secondary schools can enhance the ability of Nigerian youths to acquire adequate twenty fist century skills, create job opportunities for themselves and actively involved in productive ventures and thus reduce the propensity of social problems in the Nigerian society.

The intention to make youths self-reliant through job creation, engage them in productive activities and reduce the level of youths' unemployment, has been at the forefront of governments' policies in Nigeria over the years. The introduction of 9-3-4 system with a complementing restructuring of basic and secondary education curriculum to include technology education, pre-vocational education, entrepreneurship education, including trade education, and basic science education, in 1999 was a conscious effort to prepare Nigerian youths for self-reliance, job creation and self-employment (Festus, 2014; NERDC, 2011; Ugwoke, Okenjom & Angela, 2014).Unfortunately, this expectation seems to be far from attainment as Nigerian society have been infiltrated with abundance of ill-equipped and poorly trained secondary education graduates who do not only lack functional skills for gainful employment, but also lack trade skills for self-reliance.

Muo (2016) submits that there are persistent and strident complaints that the products of Nigerian education system are unemployable and indeed, half-baked, full of too much theory

and little practical content, are of dubious and sub-standard quality, and are deficient in knowledge, skills and attitude to the extent that even the Nigerians themselves, doubts the ability of the product of their education system to meet employers' requirements. This situation is not different in Cross River State. Essia and Yusuf (2013) argued that many youths in Cross River State are now described as "active poor" because they are unable to secure stable jobs or start and manage businesses. Sule, Odigwe, Okpa, Essien and Ushie (2020) also affirmed that despite federal government effort to reduce skill shortages and to improve employability skill among students, unemployment rate among youths is increasing at a geometric rate in Cross River State. Another group of researchers (Ejere & Tende, 2012; Uchendu, 2015; Undiyaundeye & Otu, 2015) have also pointed out that many youths in Cross River State the appear to be deficient in skills and lack what it takes to provide employment for themselves and others. this implies that secondary school students, which form chunk of the teeming youths lack job creation potentials, which can be vividly traced to secondary school curriculum and the way it is implemented. Ugwoke, Okenjom and Angela (2014) had called for the proper implementation secondary school curriculum including entrepreneurship education so as to train, and empower a greater number of youths to escape poverty by providing them with the skills and knowledge that will help to raise their output, income and wealth.

Job creation tendency is the display of ability to be self-employed, create jobs for other people and be self-reliant. It is the ability to recognize commercial opportunities and the acquisition of knowledge, skills and attitudes to act on them (Mauchil et al., 2011). Olorumolu and Agbede (2012) argued that job creation potential of individuals is displayed in their self-reliance tendencies. Suleiman (2010) added that job creation potential is the ultimate goal of entrepreneurship education which seeks to prepare people particularly the youths as responsible and enterprising individuals who are entrepreneurial thinkers that can take risks, manage results and learn from the outcomes. This implies that job creation tendency is akin to self-reliance disposition. Olayiwola (2012) submitted that self-reliance is the personal initiative in the ability and effort to identify, harness and manage effectively and efficiently the personal and collective resources, human or natural in the immediate surroundings in order to uplift one's or a people's life quality, standard and condition of existence.

However, with the emergence of information and communication technology (ICT), the ability of people to create jobs seems to be shaped by their exposure to ICT resources. Sardar, Jianqiu and Muhammad (2020) pointed out that the survival of micro-entrepreneurs could be achieved through ICT as it is a strong variable which affects social capital building, bridging and self-efficacy, both directly and indirectly. Their result revealed that entrepreneurial activity could be increased through ICT. Machmud, Suwatno, Aprilianti and Fathonah (2019) also found that ICT Self Efficacy has a significant effect on technopreneurship intention, technopreneurial learning has a significant effect on technopreneurship intention, and technopreneurial learning mediates the relationship between ICT self-efficacy and technopreneurship intention. The researcher concluded that technopreneurship intention will be more effective by increasing ICT self-efficacy through technopreneurship learning. This implies that the ability of students to develop job creation attributes may depend on their ICT self-efficacy, which drives Technopreneurship learning. Koe et al. (2018) and Harlanu and Nugroho (2015) in their different opinions noted that technopreneurship intention is very important because it leads to increasing economic efficiency, bringing innovation to the market, creating new jobs and maintaining job levels. This means that the more students are exposed to ICT tools such as internet facilities, the more the acquire ICT self-efficacy and the more the display job creation tendencies.

The above explanations point to the fact that when students are technologically empowered, the become ICT native, and thus may display high disposition for self-reliance, self-dependent, and job creation dispositions in school. Bubou and Job (2020) explained that technology self-efficacy is personal belief in one's ability to successfully use technology to increase learning outcomes. In the same direction. Yildiz Durak (2018) argued that technology self-efficacy is necessary for learners to effectively participate in an e-learning environment, that is, accessing lecture materials, using virtual instructional tools appropriately, interaction with teachers and peers, engaging in discussions as well as problem solving, and that a learner's technology and communication self-efficacy was found to be related to his attitudes towards programming. It is also noted by different researchers that online learning self-efficacy is an individual's perceptions of his abilities to successfully complete specific tasks required of online learners (Ayub, et al., 2017; Zimmerman & Kulikowich, 2016). From these empirical and theoretical expressions, it means that students' tendency to create job is expressed in their ICT-self-efficacy, which is in-turn dependent on the extent to which they are technologically empowered. Bubou and Job (2020) further stated that self-efficacy which is closely related to self-worth and self-esteem indicates an individual's level of belief in himself concerning a particular situation or thing, and this is likened to innovativeness, self-efficacy to one's self-confidence concerning his capacity to doing things and attending to particularly challenging situations in life.

These empirical positions typify the role of technological empowerment in enhancing students job creation dispositions at the secondary school level. It means that the secondary school curriculum should be designed in such a way that can promote technological empowerment among students. This is because technological empowerment breeds ICT self-efficacy which is key to building job creation dispositions. Curriculum re-engineering means restructuring the curriculum to enhance the delivery of emerging skills needed in the world of work (Azih, 2011; Maduabuchi, 2009; Okoli & Azih, 2015). Ojeaga and Igbinedion (2012) findings indicated that the use of e-learning in Nigerian educational system is still slow or even imaginary due to inadequate computer availability and internet accessibility. These researchers are of the opinion that a fully re-engineered curriculum must not only deal with restructuring the contents, it must also restructure the experiences through the full adoption of massive computer literacy for teachers and learners at all levels, connecting all classrooms and auditoriums to the internet, providing adequate computer and multimedia projectors for effective e-learning, establishing e-libraries with free access for teachers and students, providing uninterrupted power supply in the school environment, and re-training of teachers on e- teaching platforms.

This study has strong basis on Individual Innovativeness Theory and Self-efficacy Theory. Individual Innovativeness Theory was propounded by Rogers (1995) and proposes that individuals tend to react differently to changes that depended on certain traits or predispositions. The theory focuses on the idea of being adoptive and adaptive to changes, by willing to take risks unlike most others. Çelik (2013) submitted that innovativeness is an umbrella concept that mean risk-taking, openness to experiences, creativeness and leadership, and that individuals have different experiences and orientations towards innovativeness. Similarly, the theory of self-efficacy originated from Social Cognitive theory hypothesized by Alberta Bandura and holds that self-efficacy is an important determinant of learning success. Self-Efficacy Theory hypothesized a bidirectional influence between self-efficacy and learning outcomes. This implies that exposing students to e-learning platforms can arouse innovativeness in them and as the attain high level of ICT self-efficacy, it boosts their ability to be creative, self-reliant, independent, and self-confident which are tendencies of job creation.

The aimed of this study is to assess the extent to which re-engineering of secondary school curriculum in the post COVID 19 era can enhance job creation tendencies among secondary students through technological empowerment. It is quite obvious that there is an introduction of micro-electronics, telecommunication equipment, internet and computers to modern Nigerian school systems (Usoro, 2010), but the full application of these resources seems not to be maximized. Researchers seem to concentrate on tertiary education system when it comes to adoption of internet-based learning platforms such Video conferencing, YouTube, Zoom, Skype, Instagram, WhatsApp, Pinterest, Snapchat and others (Almarashdeh, 2016; Altinay, 2017; Arasaratnam & Northcote, 2017; Benedetti, 2015; Basitere & Mapatagane, 2018; Bates, 2018). These platforms are rarely recommended for the secondary school level. This may be due to the perception that they may breed moral decadence among the teeming youths. However, Babalola (2007) argued that it is pertinent to groom learners to possess the desired training, abilities, attitudes, skills and knowledge needed in todays' society. The argument here is that full exposure of secondary school students to these e-learning platforms can empower them technologically, boost their ICT-self-efficacy and thus enhances their job creation inclinations. It is on this basis that this study was designed to assess the extent to which re-engineered curriculum may promote technological empowerment and job creation tendencies among secondary school students.

Research questions

Two researcher questions directed this study;

1. To what extent is curriculum re-engineering likely to promote technological empowerment among students?
2. To what extent is curriculum re-engineering likely to enhance job creation tendencies among secondary school students in Cross River State?

Methodology

Research design*:* The research design adopted for this study is the exploratory survey design. Exploratory survey research is adopted when enough is not known about a phenomenon and a problem that has not been clearly defined and the researcher intends to merely explores the research problem with varying levels of depth.

Participants: All secondary schools in Cross River State participated in the study, though students were the target respondents in the study. Information from Cross River State Secondary Education Board as at 2021 reveals that there are 281 public secondary schools in the State.

Sampling procedure: The sampling procedure adopted was the multi-stage sampling procedure. First, the schools were stratified based on the three Education Zones in Cross River State (Calabar - 87, Ikom - 109 and Ogoja - 85). Second, 3 schools were purposively selected from each of the Education Zones. The reason for this is that the study is an exploratory survey and thus needed to use schools in the urban areas which have internet connectivity and can adopt e-learning systems. Furthermore, in choosing the sample participants of students, the researcher purposively used 20 SS2 students in each of the sampled schools as respondents in the study, making a total respondent of 180 students.

Ethical standard*:* A letter seeking the permission of principals to use their schools for the study was given to all principals in the selected schools. In the letter, the purpose of the study including the implication for participation, were expressly stated. The same process was also adopted in selecting the sample students for the study. This process was followed by an

interactive session between the researcher, the principals and the student participants. Those who gave their consent were the ones included in the study.

Instrumentation: One research instrument tagged "Curriculum Re-Engineering for Technological Empowerment and Job Creation Tendencies Survey (CRTEJTS). The instrument was validated by 3 experts in Curriculum Development and 3 experts in Measurement and Evaluation in Faculty of Education, University of Calabar. The Item level Content Validity Index (I-CVI) and the Scale level Content Validity Index (S-CV) ranged between 0.72 to 0.87. The internal consistency of the items was established using Cronbach alpha reliability coefficients and was found reliable at .82 and .89 r-values. The items were designed using a modified four-point Likert scale of Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD). All positive worded items were rated 4-points for SA, 3-points for A, 2-points for D and 1-point for SD. The reverse was the case for negatively worded items.

Statistical techniques*:* Descriptive statistics (simple percentages, mean and standard deviation)were used to analyze the responses. A criterion mean of 2.50 was used to set the decision rule for the study.

Results

Researcher question 1: To what extent is curriculum re-engineering likely to promote technological empowerment among students? The responses to this research question are presented in Table 1.

The result of the analysis in Table 1 shows that more than half of the respondents (79.9%) agreed that online learning can help them to use computer effectively, 82.1 % agreed that learning through You tube can enhance their computer skills and 82.7 % agreed with the fact that they can increase their ICT competence if they are allowed to study through WhatsApp in the school, while 81.7 % of the students agreed that applying skype in their schools can help them explore practical computer application skills. Similarly, more than half of the students (94.3 %) agreed that videoconferencing can help them learn so much about computer application, 78.8 % agreed that applying Zoom can make them learn computer better, and 87.7% also agreed that applying online learning in our school will allow them acquire computer literacy on their own. On the other hand, more than have half of the students (80.1%) disagrees that Facebook cannot promote their computer skills, 72.1 % of the students disagreed with the fact that they have adequate ICT skills even though they not have been exposed to any online learning platform in my school, and 83.3% of the students also disagreed that there is no need to apply internet-based platforms in their school because they can acquire ICT skills without them. The result in Table 1 also shows that all the items except items 5, 8 and 9, have mean scores above the criterion mean of 2.50. The result indicates that the average standard deviation is .44, which means that there is high degree acceptance among the students in their responses. However, given that the average mean is 2.94, which is greater than the criterion mean of 2.50, there is high degree of acceptance among the respondents that the extent which curriculum re-engineering may likely promote technological empowerment among students among students is high. This means that curriculum re-engineering is likely to promote technological empowerment among students in secondary schools in Cross River State.

TABLE 1: Percentages, mean and standard deviation of the responses on the extent to which curriculum re-engineering is likely to promote technological empowerment among students

S/N	ITEMs	SA%	A%	D%	SD%	Mean	S.D	Decision		
1	Online learning can help me to use computer effectively	50 (27.7)	95 (52.2)	20 (11.1)	16 (8.8)	3.20	.54	Agreed		
2	Learning through You tube can enhance my computer skills	61 (33.8)	87 (48.3)	19 (10.5)	13 (7.2)	3.31	.43	Agreed		
3	I can increase my ICT competence if I am allowed to study through WhatsApp in the school	48 (26.6)	101 (56.1)	23 (12.7)	8 (4.4)	3.20	.48	Agreed		
4	Applying skype in my school can help me explore practical computer application skills	54 (30.0)	93 (51.6)	17 (11.3)	16 (8.8)	3.15	.58	Agreed		
5	Facebook cannot promote my computer skills	(7.2)	23 13	67 (12.7)	77 (37.2)	(42.7)	.37	Disagreed		
6	Videoconferencing can help me learn so much about computer application	70 (38.8)	100 (55.5)	10 (5.5)	0 (0.0)	1.97 4.0	.26	Agreed		
7	Applying Zoom can make me learn computer better	43	99		18	20		3.18	.46	Agreed
8	There is no need to apply internet-based platforms in my school because I can acquire ICT skills without them	(23.8) (5.5)	10 (10.5)	19 (30.0)	(11.1) 54 (53.3)	97	(10.0) 1.88	.34	Disagreed	
9	I have adequate ICT skills even though I have not been exposed to any online learning platform in my school	20 (11.1)	30 (16.6)	44 (24.4)	86 (47.7)	2.05	.48	Disagreed		
10	Applying online learning in our school will allow us acquire computer literacy on our own	60 (33.3)	98 (54.4)	20 (11.1)	2	3.46 (1.1)	.55	Agreed		
	Average mean & Std Dev					2.94	.44	High Extent		

Researcher question 2: To what extent is curriculum re-engineering likely to enhance job creation tendencies among secondary school students in Cross River State? The responses to this research question are presented in Table 2.

The result of the analysis in Table 2 shows that more than half of the respondents (84.9%)agreed that online learning can help them do their practical without the guidance of a teacher, 88.2 % agreed that they can perform experiments on their own with the help of You tube videos and 81.6 % agreed that with ICT Tools they can do their assignments alone, while 84.9 % of the students agreed that If they are given the right to use Facebook apps in school, they can produce something on their own. Also, a greater percentage of the students (91.6 %) agreed that If videoconferencing is approved in their schools, they can study independently, 82.7 % agreed that with internet-based platforms they can teach other people how to perform experiments and 83.2% also agreed that online learning can help students to develop self-confidence in doing something. On the other hand, more than half of the students (73.8%) disagrees that even if skype is applied in their schools they cannot do my practical without my teacher's guidance, 71,0 % of the students disagreed with the fact that applying Zoom can only make then learn theories and not practical, and 71.4 % of the students also disagreed that they do not think ICT skills can enable them do things on their own. The result in Table 2 also shows

that all the items except items 14, 17 and 19, have mean scores above the criterion mean of 2.50. The result also indicates that the average standard deviation is .50, which means that there is high degree of acceptance among the students in their responses. However, given that the average mean is 3.00, which is greater than the criterion mean of 2.50, there is high degree of acceptance among the respondents that the extent to which curriculum re-engineering may likely enhance job creation tendences among secondary school students in Cross River State is high. This means that curriculum re-engineering is likely to enhance job creation tendences among secondary school students in Cross River State.

TABLE 2: Percentages, Mean and standard deviation of the responses on the extent to which curriculum re-engineering is likely to enhance job creation tendencies among secondary school

S/N	ITEMS	SA%	A%	D%	SD%	Mean	S.D	Decision	
11	Online learning can help me do my practical without the guidance of a teacher	53 (29.4)	100 (55.5)	13 (7.2)	14 (7.7)	3.41	.61	Agreed	
12	I can perform experiments on my own with the help of You tube videos	64 (35.5)	95 (52.7)	10 (5.5)	11 (6.1)	3.34	.34	Agreed	
13	With ICT Tools I can do my assignment alone	40 (22.2)	107 (59.4)	20 (11.1)	13 (7.2)	3.46	.67	Agreed	
14	Even if skype is applied in my school I cannot do my practical without my teacher's guidance	18 (10.0)	29 (16.1)	72 (11.3)	61 (8.8)	2.04	.55	Disagreed	
15	If I am given the right to use Facebook apps in school, I can	56 (31.1)	97 (53.8)	16 (8.8)	11 (6.1)	3.29	.57	Agreed	
16	produce something on my own					3.33	.45	Agreed	
	If videoconferencing is approved in my school, I can study independently	67 (37.2)	98 (54.4)	10 (5.5)	5 (2.7)				
17	Applying Zoom can only make me learn theories and not Practical	20 (11.1)	32 (17.7)	60 (33.3)	68 (37.7)	2.34	.52	Disagreed	
18	.With internet-based platforms I can teach other people how to perform experiments	55 (30.5)	94	16 (8.8) (52.2)	15 (8.3)	3.21	.34	Agreed	
19	I do not think ICT skills can enable me do things on my own	23 (12.7)	28 (15.5)	89 (30.3)	55 (41.1)	74 2.33 10	.61	Disagreed	
20	Online learning can help students to develop self- confidence in doing something	61 (33.8)	(49.4)	20 (11.1	) (5.5)	3.31	.43	Agreed	
	Average mean & Std. Dev.					3.00	.50	High Extent	

Discussion

The result of the first research question revealed that curriculum re-engineering is likely to promote technological empowerment among secondary school students. This implies that proper articulation of ICT tools in the delivery of secondary school education in Cross River State is likely to boost the level to which students may acquire ICT skills necessary to enhance their ability to use computer-based applications for learning in the schools. This result support the opinion of Yildiz Durak (2018) who argued that technology self-efficacy is necessary for learners to effectively participate in an e-learning environment, that is, accessing lecture materials, using virtual instructional tools appropriately, interaction with teachers and peers,

engaging in discussions as well as problem solving, and that a learner's technology and communication self-efficacy was found to be related to his attitudes towards programming. The analysis of the second research question revealed that curriculum re-engineering is likely to enhance job creation tendencies among secondary school students. This result agrees with Sardar, Jianqiu and Muhammad (2020) who pointed out that the survival of micro-entrepreneurs could be achieved through ICT as it is a strong variable which affects social capital building, bridging and self-efficacy, both directly and indirectly. According to them, entrepreneurial activity could be increased through ICT.

In the same direction, these results support the empirical findings of Machmud, Suwatno, Aprilianti and Fathonah (2019). They discovered in their study that ICT self-efficacy has a significant effect on technopreneurship intention, technopreneurial learning has a significant effect on technopreneurship tntention, and technopreneurial learning mediates the relationship between ICT self-efficacy and technopreneurship intention. This implies that ICT-based teaching and learning practices in secondary schools have the potentials to boost students' ICT self-efficacy which is necessary to arouse their job creation dispositions. These results are in line with tenets of Individual Innovativeness Theory and Self-efficacy Theory. As students are exposed to ICT-based learning, they become innovative and find new ways of applying the tools to solve emerging problems. Similarly, as they become proficient in the use of these tools (ICT self-efficacy) they begin to display dispositions for job creation which is expressed in such attributes as learning independently, building self-confidence in their ability, being self-reliant, etc. This implies that re-engineering secondary school curriculum can enhance both students' technological empowerment and ICT self-efficacy which are critical tools in arousing job creation tendencies among students.

Conclusion

No nation can attain any meaningful growth and development in this information age when a greater part of the youth population lacks basic ICT skills for productive living in society. It is also obvious that the capacity of any society to raise a generation of youths who are technologically empowered to be creative, innovative, self-reliant and self-confident, depends of how the school curriculum is continually restructured and re-organized to reflect emerging demands of the society. Based on the findings of this study, it was concluded that curriculum re-engineering is likely to promote technological empowerment among secondary school students, and also arouse job creation tendencies in them.

Recommendations

Based on the result of the study, the following recommendation were made:

1. Ministry of Education should restructure and re-organize secondary school curriculum to articulate full application of ICT tools in teaching and learning in schools as this will help build ICT-self-efficacy in students

2. Teachers and students should be allowed to explore all modern e-learning platforms such videoconferencing, WhatsApp, Facebook, Zoom, Skype, among others, in the process of teaching and learning in secondary schools. This will help to empower students technologically, as well as boost their ability to be self-reliant, self-confident, independent, resourceful in society.

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