Perception of Appropriateness of Nigeria's Computer Science Students' Curriculum in Providing Technical Skills and Knowledge for the Labour Market

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Abstract

This study examined the perception of students on the contents of the computer programme's curriculum, describing the extent to which they perceived the course content to be up-to-date, industry relevant and adequate. Also, the determining factors for choosing Computer Science as a discipline among the students were examined. The study further investigated the relationship between their perception of the curriculum and how the curriculum has been able to build their technical skills. Two hundred and eighty-three final year students responded to a survey from four selected universities in South west, Nigeria. Spearman Rank correlation shows a significant relationship between student's perception of their course curriculum and technical skills acquired. Also, students reported reputation and personal interest as the most rated factor that influenced the choice of their course of study while social activities and advice were the least ranked factors that influenced their choice of the discipline. This study concludes that the curriculum is relevant to the technical skills requirement of the students and the industries. The paper recommends an inclusive-based approach to curriculum design and development to guarantee industry uptake after graduation.

Keywords: Computer Science, Skills, Curriculum, Education, Students.

Introduction

Higher Education Institutions (HEIs) are established to equip learners with adequate skills, knowledge and competence relevant to the labour market. This is achieved by paying significant attention to students' learning and development (OECD, 2012). These institutions are responsible for the supply of competent manpower to manage diverse

fields of life. University is a part of HEIs responsible for empowering the learners with the ability to analyze issues and solve critical problems that may come their way while at work (Castells, 2001). Also, the universities are seen as a place for raising new leaders in the society as well as a location for generating new ideas and knowledge (O'Banion, 2011).

The autonomy to decide the kind of research they carry out and the topics to teach in their courses also resides with the universities (Huber, 2016). They also use their discretion on their curriculum, appointments, and other issues that varies from institution to institution Summarily, universities are established with the motive of providing the theoretical and foundational knowledge for learners to build on (O' Shea, Lysaght & Tanner, 2012).

The knowledge and skills expected of these institutions are theoretical and practical in nature to equip graduates with requisite skills that will make them competitive in the job market. Therefore, the curriculum is expected to give opportunities for the acquisition of skills that traverse all disciplines (Abass and Imam, 2016), signaling to employers that appropriate and practicable learning has taken place (QS Intelligent Unit, 2017).

Computer Science (CS) is one of the IT related disciplines and it is a well-established field of study in almost all the tertiary institutions in Nigeria. The discipline infuses relevant skills into students and as a result, several professionals have emerged from the programme and are positioned in various organizations. The discipline has gone through changes over several decades and require qualified professionals to keep pace with the trend in technology, computational thinking skills and the knowledge required for competitive development.

Computing has taken the center point in all fields of human endeavour (Patacsil & Tablatin, 2017). The Bureau of Labour statistics (BLS) in the United States identified computer and data processing services to occupy eight of the top ten fastest growing occupations between 2000 and 2010 (BLS, 2001). Also, Parker, (2006) noticed that graduates of computing generally have up to three or four job offers with salaries higher than that of their contemporaries from other disciplines. This was corroborated by the result of a study carried out on the skill sets required on the job by Stutern (2016) in Nigeria where it was reported that Information Technology skills is one of the highly required skills in the Nigerian labour market. These skills are expected to form part of the

learning outcomes of the curricular. Consequently, the study further affirmed that financial institutions and the IT sector were the highest employers of labour.

Computer Science as a course is characterized with developing software applications and computer programmes. Students of Computer Science in Nigeria undergo certain courses that are general to Computer Science, Information Systems and Computer Engineering. Such courses are system programming, data structure and algorithm, data communications and networking, database systems, project management, computer operating systems, numerical computation, software engineering, artificial intelligence and expert systems among others (Hubwieser et. al. 2011; The Royal Society, 2012; & Giannakos, 2014). The course curriculum is therefore expected to address the required skills gaps in the IT world and ensure that students are well equipped to stand competitive in the labour market (Hogan and Li, 2009).

Professionally, Computer Science students in Nigeria, gain their first experience via Students Industrial Work Experience (SIWES). This enables them to put into practice, the theoretical knowledge acquired in schools and also acquaint themselves with the practice at workplace. During this period, students to an extent are able to establish the relationship between their learning experiences in school and job requirement in the industry. The continuous advancement in technology, faculty skills, resources and the industrial demands are the important factors to be considered in developing a robust curriculum for Computer Science (Davis, 2003; Bristow, 2013).

The general approach to understanding the effect of teaching on student learning revolves round teachers' competence, teaching method, learning environment, school infrastructure and students' performance (Karns, 2005). Educators need to continue to examine the perception of the learners on the teaching received and their learning experiences in order to guide the course design and satisfy the curiosity of the learners.

The dynamic nature of the work environment and rapid advances in IT necessitates for frequent updates of the curriculum. The profession requires a varied collection of skills that include technical, problem solving, communications and team works. It implies that universities in Nigeria are challenged to equip Computer Science learners with up–to-date skills in order to fit into the profession (World Economic Forum, 2018). Having adequate knowledge of the skills required and being ready for the workplace is important to both organization and the institutions. The motivation for this study arose from an

interest in having an effective and relevant Computer Science programme that meets the needs of the world of work and the society at large.

The issue of unemployment has been a bane to the development of developing countries of which Nigeria is not an exception. The universities in these countries produces graduates that daily search for employment opportunities. (Educational and Employability Survey Report – March 2014). The socio-economic implication of high unemployment rate largely determines the growth a country is experiencing. Some of the issues generated on the basis of unemployment were based on quality and readiness to work.

Studies on labour market skills demand and employer assessment of the competence of graduate employees in both private and public organizations in Nigeria shows that there is a misalliance between the job skills acquired by graduates of universities and the required skills needed to execute tasks in the workplace. These discrepancies were noticed in skills demand and supply into the labour market and it is affecting the employability of graduates. It is also established that graduates are not equipped with the relevant skills and knowledge needed by the industry. It is believed that the goal of education which is to equip graduates with the appropriate skills for the task at workplace is not fully achieved.

When graduates of Computer Science do not possess the skills to effectively perform their duties, organizations face increased training demands, poor performance and efficiency, and increased turnover. Hiring properly trained individuals allows organizations to spend less time preparing new staff thereafter makes it more efficient to incorporating them into the workplace. For higher educational institutions, understanding the required skill sets is critical for curriculum maintenance and development.

This paper is an attempt to examine the important parameters considered in choosing Computer Science as a course of study by final year undergraduate students and if they perceived the school curriculum as adequate in bridging skills gap in the industry. This is with a view to providing empirical inputs towards the development of a relevant curriculum by educational planners, curriculum developers and other relevant stakeholders. The study may also be used as a baseline study on the readiness of students for workplace in Nigeria. The study will also help schools to improve the quality of advice they give to students and provide ideas on how improvements can be enhanced on

institutional actions and services to facilitate the transition of learners from universities to the workplace.

Purpose of the Study

The purpose of the study is to examine students' perception of the Computer Science curriculum in Nigerian universities and whether it is building the relevant skills in them. Specifically, the study tried to:

i. Describe the factors that influence the choice of Computer Science as a discipline of study among final year Computer Science students in South-West Nigeria.
ii. Examine the Computer Science students' perception of the course curriculum.
iii. Investigate the correlation between students' perception of the curriculum and the technical skills possessed by the students.

Research Questions

i. What influences the decision of students to study Computer Science?
ii. What is the perception of students on the Computer Science curriculum?
iii. To what extent are Computer Science students rating themselves on technical skills?
iv. Is there any relationship between the technical skills possessed by the students and their perception of the curriculum?

Review of Related Literature

Students' Perception of the curriculum and their Learning Experiences

Several studies have been carried out to establish the students' view about the school curriculum and how the content of the curriculum has been able to impart relevant skills into the learners.

In a bid to establish the necessity of putting the perception of the learners into consideration in curriculum planning, it was observed that students learn better via field trips, internships, class discussion, and case analysis (Karns, 2005 & Karns, 1993). Summarily, it requires different form of engagements to enhance good learning experiences and students' satisfaction. Young, Klemz, and Murphy (2003) also found that student learning outcomes improve when students prefer the learning activities. For

instance, on the use of guest speakers from industries, students reported it to be the most preferred learning activity as well as class discussions.

Kuhn and Rundle-Thiele (2009) studied how students' perception of learning achievement explained how the course activities and pedagogy are assisting or hindering students to accomplish course learning goals. The students perceived they have made good progress in their course but recommended improvement to attain excellence. The correlation result indicated that student perception of learning achievement has significant impact on the grade of students.

Considering how well universities focus on developing relevant skills in their students, Koppi; Sheard; Naghdy & Chicharo et al (2009) elicited information from 548 graduates of 5 Australian universities on relevance of ICT curriculum to the workplace experience. The opinions of the graduates' points to the fact that they were well prepared in technical skills but underprepared in communication and other 'soft' skills. Generally, the students prefer more exposure to new and emerging technologies and practicalities relevant to the workplace.

Similarly, Manzar-Abbas & Lu (2013) assessed students' perception of the curriculum and their satisfaction about the proportion of theory and practice in the curriculum. The study revealed that the content was not compatible with their level of interest, and they suggested a need for improvement of the current curriculum content and a shift of the focus of the content from theory to practice. Herdlein & Zurner (2015) also, in a study on student satisfaction, needs, and learning outcomes, demonstrated that students believe that post classroom interactions enable them to develop personal knowledge and skill sets important to becoming global citizens and competent professionals.

In the United States, Johnson (2016) examined the relationship between student perceptions of school effectiveness and student achievement on 350 middle school students in the United States, the result revealed statistically significant correlations between the student perceptions of school effectiveness and student achievement. The study suggested that educational planners should examine ways to ensure that the curriculum is all encompassing and delivered in a systematic manner.

Kurnia (2017) evaluated how well the information system curriculum is developing the skills expected of the professionals and the satisfaction of the students in Australia. The study gathered the opinion of 49 final year students and found that the course catered for

the soft skills needed at entry level in the industry. This was attributed to the professional skills program (PSP) introduced by the Department while the study also shows that students are least satisfied with their technical skills but it has provided the foundational knowledge which they can build on in the future. The study further recommended improvement in the course curriculum.

The system of education in Nigeria is faced with a lot of challenges that may inhibit development if not properly addressed. Having ill-equipped graduates from our tertiary institutions will continue to hinder the national transformational goals and sustainable development. From the literature so far, it could be deduced that the development of inclusive curriculum for Computer Programmes in the universities requires collective engagements among the stakeholders with adequate attention paid to the students' perception and industry relevance.

Factors Influencing Student's Choice of Computer Science

Choice is the outcome of a process which involves assessment and judgment in a bid to make decision between two alternatives (Beresford & Sloper, 2008). Students will come through high school with knowledge of their preferences and interests because of their interactions with many stakeholders in their environment. The choices include the programme to pursue in Higher Educational Institutions and the career path to follow. The higher educational institutions provide formal education to learners which lead individuals to their respective careers. It must be handled carefully in order not to experience disappointment in future (Adebowale, 2011).

As part of the pre-enrolment measures which is part of the determinants of the success of a university course, some studies found external influences, self-efficacy, beliefs and outcome expectations as influencing factors (Alexander, Holmner, Lotriet; Pieterse, Naidoo, Twinomurinzi & Jordan, 2011). The study went further to indicate that interest in the career is perceived to be of utmost importance. It is observed that students are at times advised to study Computer Science by their guidance-counsellors or parents because of the feeling that "*everything is going to computers"* so it is assumed that students are on the right path by majoring in Computer Science. Despite how promising the discipline appears, some challenges were associated with the course. The challenges identified include, poor problem solving abilities, poorly designed laboratory courses, lack of practice and student-teacher feedback, inexperienced teachers handling courses and poor project management skills (Beaubouef & Mason, 2005).

Interest in technology and the subject has been identified to be some of the main factors students considered in choosing Management Information System (MIS). Other factors of note are career related issues and self-efficacy (Brooks, Korzan, and Ceccucci, 2014). Accordingly, the way out is to ensure that intending employees upgrade their skill-set through relevant training.

In the United Kingdom (UK), graduates were motivated to enroll in Computer Science as a result of their interest in the course, job placement opportunities, ranking and reputation while some went further to consider course content and structure when considering the career path to follow. They however, felt unsatisfied when an evaluation of the course was done and it was discovered that the course did not prepare them for the workplace (BIS Research,2016).

Kazi and Akhlag (2017) investigated the influence of several factors such as parental education, profession, peer and income on the career decisions of 32 students from two public sector universities in Lahore city. The researcher found parental influence as the most significant influencer of choice. Other factors include influence of peers, gender, print media, financial reasons, interest and others. The study revealed the minimal need for counseling but reported that the work environment is a factor that attracts students towards a career. The study recommended that the interest of students should never be undermined in choosing a career path.

Thouin, Hefley and Raghumathan (2018) also investigated the factors that affect how students select a programme; the study considered programme ranking, reputation, industry connections, job placement success, internship opportunities, reputation and advice among many others. Students ranked programme ranking, job placement success, industry connections and reputation higher than others.

Limited studies have been able to establish the students' considerations in choosing Computer Science as a discipline in Nigeria, as well as their satisfaction with the course. This study provides the view of students on this discourse. It also provides knowledge support to the understanding of some achievement problems and employability challenges facing our country.

Research Methodology

The study employed a cross sectional survey research design. A questionnaire titled Computer Science Students' Skills and Perception Questionnaire(CSSSPQ), was developed and adapted from Koppi et al (2009), McMurtrey et al (2008) and Thouin et al (2018) after an in-depth review of the literature. The questionnaire contained the

statements of abilities on the extent to which the university courses focused on developing particular abilities on the students, their technical skills and aslso, the factors that influence the students' choice of Computer Science.

The questionnaire has three sections. The first section elicited information on the demographic characteristics of the respondents; in the second section, respondents were asked to rate their perception of the Computer Science curriculum on a four point Likert type-rating scale that contains nine items. The perceived technical skill of the respondents was captured/measured with a five point Likert type-rating scale in order to determine the extent to which the curriculum has prepared them. Also, computers science student's rating of the factors that influenced choice of course to study were measured on a Likert type - rating scale where students were asked to rate the extent to which some factors influenced their choice of Computer Science using "very much, much, little and Not at all".

The study considered the final year students of four universities in Osun state, Nigeria, on the premise that the students were believed to have been exposed to the curriculum and as well had their industrial experiences. Four out of seven universities in the state were included in the study, representing 60% of the total number of universities in the state. A total of 300 questionnaires were administered to the final year students of Computer Science in the four selected universities during the 2018/19 academic session. However, 280 questionnaires were retrieved and found useful for the purpose of this study.

To measure the association between the students' perception of the curriculum and their technical skills, the Spearman rank correlation was used because of the ordinal nature of the data. In addition, it does not assume any linear relationship between variables. Spearman's rho can range from negative one (-1) to positive one (+1). This is to investigate whether the technical skill possessed by the students is associated with their perception of the curriculum. The Computer Science program selection factor was described using descriptive statistics.

Results and Discussion

This section commences by presenting percentage distribution relating to the socio demographic details of the respondents. It is then followed by descriptive statistics of the factors that influences students' selection of Computer Science as a course of choice in the university. The perception of the students on the school curriculum and their self-rating of technical skills were also described using mean score. The results of the correlation analysis were then presented. The report covers both 400 & 500 levels

because of the variation in the duration of programme and the qualification (B.Tech /B.Sc.) awarded by institutions.

Table 1: Socio-demographics distribution of Respondents

Variables	Levels	Frequency	Percentage
Gender	Female	86	30.7
	Male	194	69.3
Level of Study	400	170	63.0
	500	98	36.3
Possession of Professional Qualification	Yes	38	13.8
	No	237	85.9

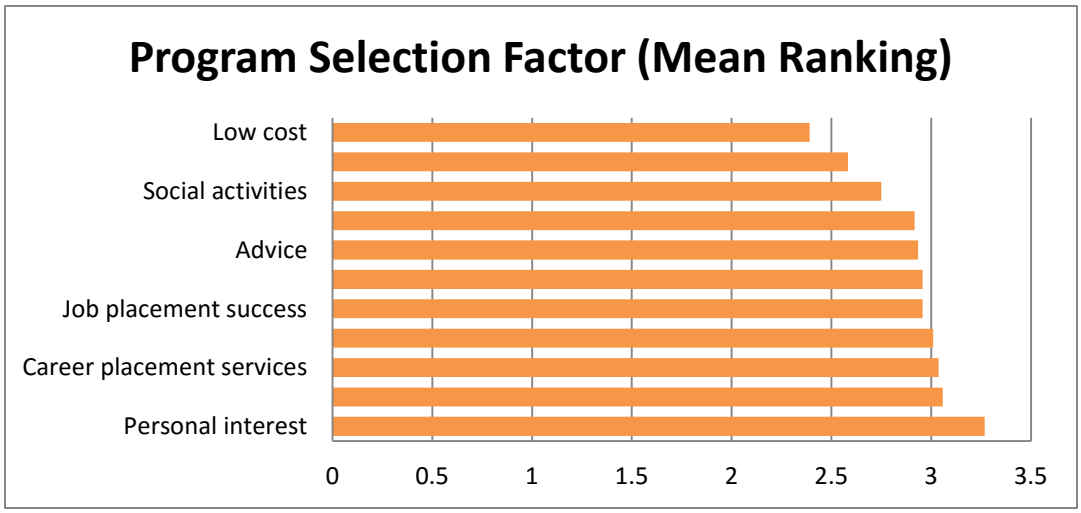
Source: Field Survey, 2019

The sample size consists of 86 (31%) females and 194 males (69%). This analysis indicates that there are more male Computer Science students in the study area. This supports studies that have opined that female representation in Science, Technology, Engineering & Mathematics (STEM) courses like Computer Science/ICT is really low as compared to their male counterparts. This situation has mostly been attributed to societal stereotype and cultural beliefs that women should be engaged in fields such as humanities and arts which might likely provide them with ample time to carry out their domestic responsibilities (Lewis, McKay& Lang, 2006; Valenduc & Vendramin, 2005 and Akinsowon & Osisanwo, 2014). It is also similar to the report of HESA, UK in 2016/17 that the highest percentages of male students were in Engineering & technology, Computer Science and Mathematical sciences, with 81%, 81% and 62% respectively.

Over 85% of the respondents reported not to have any professional qualification that could give them a competitive edge in the labour market. This implies that students' have negative attitude towards professional development outside the school curriculum and may likely impact negatively on their employability and subsequent performance at the workforce.

Research Question 1: What influences the decision of students to study Computer Science?

Figure 1: Factors that Influence Selection of Computer Science as a Course



Source: Field Survey, 2019

The reasons students choose certain specialties may be integral to the quality and perceived future potential of specialty programs. Specifically, this section provides insight on factors that serves as determinants of student's choice of Computer Science as a course of study.

Despite the fact that there is no much difference in the mean analysis of the student's responses; personal interest and course reputation were ranked most highly. Students felt that the opportunity to be respected in the society as an "IT expert" was important to them and that their personal curiosity of what the course is all about and possible familiarity or early exposure to technologies was of utmost importance. This was also established by the study of Alexander et al (2011), Brooks et. al. (2014), Thouin, Hefley, & Raghunathan (2018) and BIS Research, 2016 whose studies indicated that interest in the career is perceived to be of utmost importance.

Career placement services, industry connections and job placement success were also highly ranked by the respondents. This finding confirms the report of Patacsil & Tablatin (2017) that IT has taken the center point in all fields of human endeavor and therefore the services of Computer Science graduates will always be needed in all fields. It is also in-line with Parker (2006) who asserted that graduates of IT courses have up to three or four

job offers with salaries higher than their contemporaries from other disciplines. However, low cost, program rigour, social activities, advice from friends and family members were the least important on the scale of preference for the choice of Computer Science as a course of study (Beaubouef & Mason, 2005)

On this note, school administrators and curriculum developers need to ensure that learners' interest in the course is promoted by having a curriculum that meets the yearnings of enrollees of the program. Also the reputation that the course has built overtime needs to be managed adequately. Additionally, Universities should carry out a follow up on the graduates of their programmes in order to ensure that the course always meets the employers demands.

Research Question 2: What is the perception of students on the Computer Science curriculum?

Table 2: Descriptive Analysis of Student's Perception of Computer Science Curriculum

Students' Perception	Frequency	Mean
My internship experience has prepared me for work	270	3.0852
A professional qualification will give me an edge over my mates	272	3.0699
I prefer classes with frequent guest lectures by industry professionals	274	3.0438
My qualification has an advantage over other discipline	274	2.9599
My school experience is different from my expectations	272	2.9559
The content of my course is too theoretical	271	2.9446
If I have opportunity for further degree, i will study Computer Science	272	2.9228
My university courses prepared me well for work	272	2.6140
The technical content of my degree is always up to date	273	2.5311

n=280. Source: Field Survey, 2019

Table 3: Respondents grouping on their perception of Computer Science Curriculum

Variables	Frequency	Percentage
Poor Perception	120	42.3
Good Perception	160	57.7
Total	280	100

Table 2 and 3 show the respondents' perception of the Computer Science curriculum with respect to personal expectation, industry relevance and the preparedness for the future. Students express a strong view that they will prefer classes taught with frequent guest lectures by industry professionals (M= 3.0438). This suggests practical exposure to industry practices as the experiences gathered in the industry is shared with the learners to acquaint them with happenings in the workplace and enable them to follow the technology trends. Also, internship (M=3.0852), that is; the Student Industrial Work Experience (SIWES) has the potential to prepare them for the workplace. The students understand the importance of professional qualification as an added advantage, which could make them more marketable in the labour market among their peers, therefore they rated it high (M= 3.0699). On a scale of 4, students expressed displeasure in what they experienced in school and their expectations (M= 2.9559) and strongly agreed that the course is too theoretical with little practical sessions (M=2.9446). However, the personal interest in the course will always make the students study Computer Science if given another opportunity (M=2.9228). The findings are in conformity with Koppi et al (2009) and Mcmurtrey, 2008. Though, the students' overall perception of the curriculum was good, they however, believed that their school experience was slightly different from their expectations. This is corroborated by Manzar-Abbas & Lu (2013) who reported that the content of the curriculum was not compatible with students' level of interest, and they suggested a need for improvement of the curriculum content and a shift of the focus of the content from theory to practice.

Summarily, about 58% of the students had a positive/favourable perception of the adequacy of the Computer Science curriculum.

From the analysis, perception of the student's curriculum was measured on a 9-item Likert scale with responses ranging from Strongly Disagree to Strongly Agree. A cronbach Alpha of 0.831 was reported, indicating that the items measured the purported variable adequately, that is, the items have a relatively high internal consistency. Also, the mean of the scale was reported as 2.90.

Research Question 3: To what extent are Computer Science students rating themselves on technical skills?

Table 4: Respondent's Self-Rating of Technical Skills

Categories of Technical Skills	Frequency	Mean
Having numerical skills	276	3.2935
Computer hardware maintenance	271	3.2694
Being familiar with current technologies rather than fundamental theories	273	3.2015
Operating system knowledge	276	3.1957
Project management knowledge	272	3.1875
Mobile or wireless networks	275	3.1745
Network topologies & protocols	277	3.1552
Programming in high level languages	275	3.0873
Programming in object-oriented languages	273	3.0696
System analysis	272	3.0588
Network hardware	272	3.0221
Web design and publication	270	3.0074
Database design and development	272	2.9816
Programming in web development language	277	2.9206
Information systems planning, management & evaluation	272	2.9118
Information access & security	270	2.9111
Decision support systems	264	2.8561
Use of CASE tools	274	2.8540
Using database query languages	276	2.8225
Knowledge management systems	269	2.8216
Expert systems/AI/ Neural Networks	272	2.6471

n=280. Source: Field Survey, 2019

For the analysis of responses on technical skills section, students were obliged to rate how Computer Science study has equipped them with some stated technical skills such as programming in web development, network topologies and protocols, network hardware and database design and implementation amongst others. A mean score of 3.06 was reported with a Cronbach alpha value of 0.888, indicating a high internal consistency among the items on the Technical Skills scale. According to Straub et al., (2004), a Cronbach alpha of 0.7 and above is acceptable (Straub et al., 2004).

Table 4 has shown that having numerical skills, computer hardware maintenance, familiarity with current technologies, knowledge of operating systems, project management knowledge, network topologies & protocols among others were all rated above 3.0070 on the five-point scale. These values were not significant. On the average, the result shows that the courses taught have impacted on the students with respect to their reported skills. This is evident in the high mean score reported by majority of the respondents. However, more efforts should be directed at ensuring that skills in expert systems/AI/ neural networks, knowledge management systems, use of database query languages, and use of CASE tools have more attention from the tutors of these courses. This finding is consistent with Cappel (2001) and Noll & Willkins (2002) but has slight differences in the skills explored and concentration on expected and actual ratings.

Research Question 4: Is there any relationship between the technical skills possessed by the students and their perception of the curriculum?

Table 6: Correlation Analysis showing the Relationship between Technical Skills and Perception of Curriculum

Correlations			
		Perception of the curriculum	Technical Skills Mean
Perception of the curriculum	Pearson Correlation	1	.422**
Technical Skills Mean	Pearson Correlation	.422**	1
**. Correlation is significant at the 0.01 level (2-tailed).			

Spearman Rank correlation was used to test the level of association between the extent to which student perceive their course contents to be up-to-date, industry relevant and the level of technical skills they possess as undergraduates. A significant association was found between respondent's perception of Computer Science curriculum and acquisition of technical skills. This is in-line with the findings of Johnson (2016) that established a significant relationship between school effectiveness and learning achievement. It implies that there is a relevant relationship between how much students perceive the adequacy and relevance of Computer Science curriculum and the technical skills they possess. It means that the more updated the curriculum is, the more relevant it becomes to the industry and the better the technical skills of the students.

Student perception of learning achievement measures provide an alternate means to understand whether students are learning what was intended, which is particularly useful

for educators faced with curriculum development. Further, these measures enable educators to simultaneously gather evidence from students to document the impact of the curriculum on their skills. Meanwhile, Duke (2002) established that students may not have full understanding of the workplace, their exposure to the curriculum enables them to rate their perception in order to get better quality program from their respective institutions which forms an important component to a successful program. The study also indicates that there is room for improvement in developing technical skills of students (Kurnia, 2017).

Conclusion

Curriculum activities purposefully involve enhancing student learning. By seeking to understand student learning, what factor influenced their choice of the course they are studying, higher educators can receive diagnostic information that can result in actionable changes. Researchers (Rundle-Thiele, 2006) have demonstrated how student perceptions of their own learning achievement for course learning goals can provide insightful information to inform course development. This study has been able to find out that personal interest, reputation as well as career placement prospects strongly influenced undergraduate choice of course to study. Also, it was concluded that computer hardware maintenance, familiarity with current technologies rather than fundamental theories are necessary skills the students rated themselves to possess. In addition, it was concluded that there is a relationship between student's perception of curriculum and the amount of technical skills possessed. This invariably implies that student's view on the quality and contents of curriculum will go a long way in affecting the skills acquired in the university and in turn enhance adequacy of the curriculum. The study recommended that universities should include frequent guest lectures by industry professionals in order for the learners to be acquainted with evolving trend in the IT world. Also, in order to be competitive in the workforce, students are to be encouraged to embrace professional certifications as it signals competence to employers in the ICT industry.

The limited data in this study suggest that curriculum developers must continue to explore the importance of school curriculum and how it impacts the learners. This research provides curriculum developers a push to examine other areas on how the school curriculum impacts the learners that were not captured in this study. It also emphasized the need to use inputs from students as stakeholders to inform and improve educational activities.

Limitations of the study

In the light of the findings of this study, it is believed that students overestimate their performance (Clayson, 2005, Kuhn & Rundle-Thiele, 2009) and therefore the results have to be reviewed with the mindset that the students overrated themselves. The results of the current study must be viewed in light of some key limitations. First, this study reports on few selected Universities in Nigeria. Time and financial constraints hindered more elaborative perspective. Hence, more evidence is needed to draw a definitive conclusion. Second, the student's program selection factors were on rated scales which are not clear progressions along a scale. Also, in this paper, student's technical skills acquired are quite subjective as there was no practical check to assess the skills and learning achievement mentioned. Future research is required, with scale improvements called for, to enhance our analytical capabilities. Analysis was restricted in the current paper by the nominal scale.

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