The Computer Science Final Year Project: a time to mentor

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Abstract: **Final Year Project (FYP) is an important component of higher education degrees which helps to consolidate students' learning by providing an opportunity for applying a broad range of knowledge to a real life problem while developing other useful skills. Students work in close proximity with their assigned supervisors who guide them on a learning path during their project work. Research claims that the quality of overall outcome is dependent on the supervisor/student relationship. The results of the survey found that students who had a good experience during their FYP were more likely to continue in computing and IT careers. MentorNet, an online mentoring platform is analysed and e-mentoring platform similar to MentorNet to support IT human capital development in Nigeria is recommended.**

Keywords: **Final Year Project, Mentoring, IT human capital, Final Year Learning Experience, computing education, gender issues in computing**

I. INTRODUCTION

In Nigeria, students study for a period of 4 or 5 years to obtain a HND or a BSc in the computing field (computer science or information technology being the most popular programme titles). The curriculum is broad based and in the last semester of their studies, students are required to produce a substantial piece of work to show case their knowledge. This is encapsulated under a course usually titled "Final Year Project" , "Individual Project" or simply "Project"(Salem University, 2011). The Final Year Project (FYP) is an important part of the Computer Science, Information technology and similar ICT higher education degrees both in Nigeria and around the world because it gives the student an opportunity to work on real life problems and apply all the knowledge that must have been gained in the course of his studies (Thomas, 2008) and more.

The aim of higher education is to breed professionals in a particular field of study(Pillai, 2011). In deed the final year project is seen as the highlight of the student's studies as he is given the opportunity to produce something original, unique and creative. A piece of work that is entirely his/her own creation. This idea is best captured by the fact that in the United States and some Asian countries, the final project is called a "capstone" project (Thomas, 2008).The dictionary defines capstone as "the high point: crowning achievement"(Marriam-Webster, 2015). To this end, the FYP can be taken as a showcase of the student's knowledge and skills in the field A showcase of those acquired in the previously and those developed and correctly applied on the FYP.

During the FYP, which could last up to six months, students interact with a dedicated member or members of staff and senior colleagues, who help to guide the student on the journey of completing his/her project. This can be seen as a sort of apprenticeship. The student and the supervisor(s) are supposedly in close contact as they rub minds together to solve problems. It is envisaged that this is a fertile ground for building a professional relationship that could enhance the career of both parties.

This research attempts to establish the fact that the FYP is a fulcrum through which human capital can be developed for the IT sector. The experience of the impact that the final year project has had on the career projections of students would be shown. A survey was carried out to assess student and supervisor experience on the FYP and the data was analysed using SPSS.

By this, this research wants to answer some questions. First of all, "does the final year project experience impact on career choice?" Secondly, "can the final year project provide a viable mentoring environment?"

The objectives of this research include first, finding out the experience of students and supervisors on the final year project. Secondly to find out the impact of final year project experience on career choice. Thirdly, to find out the disposition of supervisors to project supervision and fourthly, to uncover the potentials for mentoring in the FYP.

Section 2 discusses the literature, section 3 presents the methodology used. The results are presented and discussed in section 4. Section 5 is the conclusion and recommendations.

II. LITERATURE REVIEW

A. Structure of the final year project

Final year project in computing is a "substantial piece of software or hardware development" (Salem University, 2011). It is administered on a supervisor-supervisee model. Few students are assigned per supervisor who is an academic staff usually based on their (the supervisors') interests. Topics are usually suggested by students but approved by the Department. It is also common practice for academic staff to suggest topics which they would like students to take up and work on (Pillai, 2011).

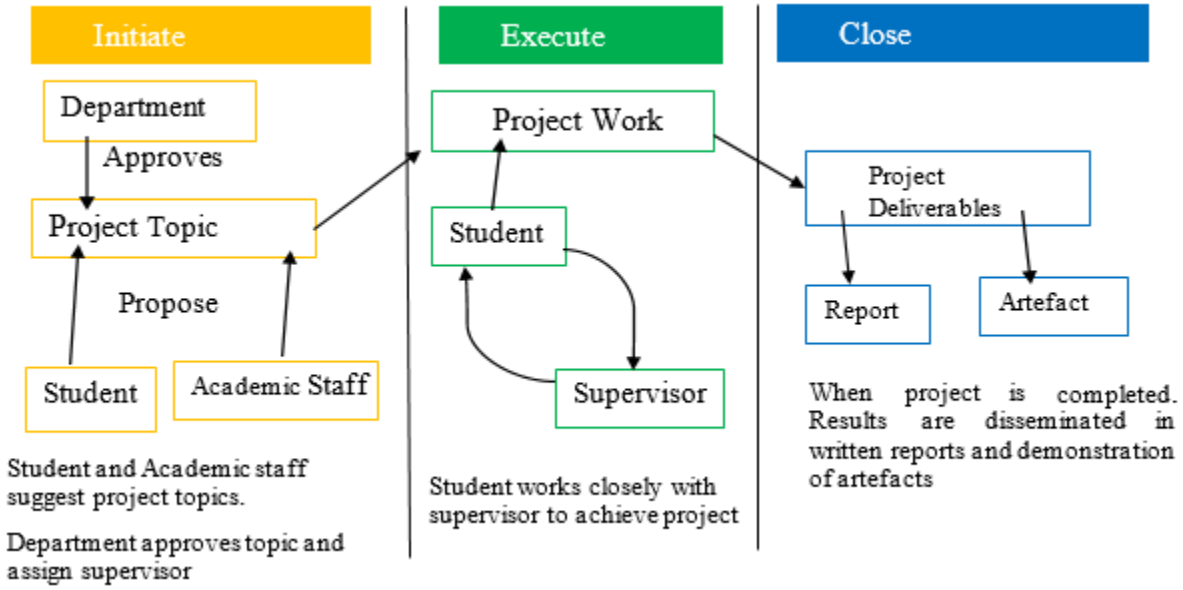

Figure 1: FYP Work Flow Diagram

The computing final year project is usually a system development project. This could be in the area of software, hardware or networking. In few cases, students are allowed to carry out some kind of pure research work such as surveying causes of a particular phenomenon that has relevance to computing for example in the area of networking, telecommunication or Human Computer Interaction.

The role of the supervisor is to guide the student during the course of the project. The supervisor is not supposed to give answers but rather to allow the student discover answers for himself. The supervisor can then guide the student in narrowing down to the best answer (Pillai, 2011). Supervisors can have varying numbers of students attached to them for supervision in any one session. A survey of the practice in UK University Biosciences Departments found that the average number of students per supervisor was 3.8 although the range was 0 to 18 (Cowei, 2005).

In the course of the project, regular meetings are set up between the student(s) and the supervisor. Some meet students individually while others meet all their students as a group. (Pillai, 2011) however, pointed out some advantages of group meetings such as saving the time of the supervisor, addressing general issues such as referencing, plagiarism, report structure at a go, assisting introvert students, helping to cover more ground as questions forgotten by one student will be asked by another, as well as broadening the knowledge of all the students as they can learn new ideas from listening to what other students are trying out in their project.

At the end of the project, the student is required to submit a written report of the work carried out, including technical design diagrams and user manuals (if applicable). The student also presents and demonstrates his work during the final year defence which is attended by academic staff, an external examiner and other students.

B.The FYP Experience

A number of people have researched into the final year project experience with the aim of drawing lessons for its improvement. A research project titled "Outduction" (outduction.ac.uk) which aimed at investigating the experience of the final year project at the school of engineering, design and technology at the University of Bradford, UK is an interesting case study. The research discovered among other things that the quality of supervision had a huge impact on the success and overall experience the student had on the project (Pillai, 2011). Thomas (2008) pointed out that the aim of the final project was two-fold: First, to develop the student and prepare them for employment and second, to assess how much they have learned on their studies. This idea is also reflected by (Shafie, Janier, & Herdiana, 2008), who stated that the purpose of the final year project is to "look at the ability of the students to assimilate knowledge…into successful completion of a project" and also to serve as a "gauge to determine potential for graduate studies".

Few people will doubt that one of the strong aims of the final year project is to prepare students for the next phase of their careers whether that be work or further studies. Employers have been known to take interest in student's final year projects as a basis for offering employment. Worthy of note is the practice at Bradford University, UK (Pillai, 2011) (which is typical of many western universities) to invite industrial visitors to the open day showcase of the final year projects. Students also have the opportunity to work in a real life environment and interact with professionals. In deed in some cases, project topics are proposed by industrial partners who

then become co-supervisors and sponsors of the project. Ryder pointed out that students carry out their research in real research labs working alongside other post-doctoral researchers and Doctoral students. Hence, they experience first-hand, what it is like to do research every day. This experience can help them make quality decisions about their career projections. Worsely (2005) also opined that when students do a substantial piece of real life research, it helps them to feel that they and their work are valuable to the wider community.

Students graduating from higher education form the bulk of human capital for industry and academia. It is therefore important to ensure that these graduates possess the skills that are required by employers. Over the course of their 4 or 5 year programmes, students learn mostly the technical knowledge of their discipline. However, many of these knowledge feel like static information to most students.

Ryder (2004) made reference to what students called the 'cook book' experience of learning while on their course and the need to learn 'tricks of the trade' while doing their final year project. By this they were contrasting the experience gained in doing premeditated experiments to that which was gained when on a real life experiment which required gathering real life spontaneous data.

From the foregoing, it is clear that the final year project is of immense importance to the professional maturity of students. If it is any solace, research has found that the skills developed during the final year project are indeed, the same skills employers are looking for (Thomas, 2008; Ryder, 2004). Therefore, more effort needs to be put into fine tuning the execution of the final year project in Nigeria, so as to reap bountiful results.

Table 1: Comparison of Skills Needed by Employers and Those Learnt from Final Year Project.

Skills Needed By Employers (Thomas, 2008)(Department of Education and Training (Australia), 2002)	Skills learnt on FYP (Ryder, 2004)
❖ Planning and Organising ❖ Technological skills ❖ Initiative and Enterprise ❖ Lifelong learning capacity ❖ Problem solving ❖ Self-management ❖ Communication skills ❖ Team work	❖ Time management ❖ Use of Initiative ❖ Creative thinking ❖ Communicating results ❖ Personal organisation ❖ Adapting to unfamiliar environment ❖ Realistic Assessment of own performance ❖ Professional working environments and activities

Table 1 shows a list of skills that are desirable of human capital by employers along with the skills that are learned during the final year project. This shows that the final year project is a veritable tool for the development of human capital. Daniel Halliday in his presentation highlighted how skills were transferred from his final year project experience to employment. He highlighted planning, time management, team management, communication skills, public speaking and statistical skills as definite skills he could map to on the job experiences of working to tight deadline, working with difficult people, analysing datasets and communicating with other workers as well as application of knowledge gained through his studies(Halliday, 2005).

Table 2: How The Final Year Project Contributes To Human Capital Development (Department Of Education And Training (Australia), 2002)

Employability Skills	FYP Contribution
Communication Skills	❖ Production of written report ❖ Presentation of project to other students and staff examiners
Teamwork skills	Working with other group members throughout the project work period
Problem solving skills	Finding solutions to problems encountered during the project
Initiative enterprise skill	Identify a problem and proffering solution
Planning and organising skills	❖ Work on project over the apportioned semester ❖ Working to deadline set by supervisor and department
Self-management	❖ Doing own work ❖ Motivating self to keep at the project and get it done on time
Learning skills	❖ Learning new skills required in the course of the project ❖ Searching literature and other data gathering ❖ Analysing documents and data for appropriateness. ❖ Extracting knowledge from data and information gathered
Technology skills	❖ Use of word processors and power point presentations ❖ Use of projector for presentation ❖ Use of internet for search

Employers are not looking for people who have only academic knowledge, but they want people who have a well-rounded skillset with which they can be successful in the workplace(Universal Business School Sydney, 2010). The final year project is well able to do this.

C. Mentoring: A case study of MentorNet

A mentor is someone who teaches or gives help and advice to a less experienced and often younger person (Marriam-Webster, 2015). Mentoring is recognised in all spheres of human

endeavour as a sure way of nurturing and developing talent. From informal apprenticeship to corporate mentoring programs, the goal is the same. The situation is not different for the IT sector. Mentoring builds the gap between raw talent and expertise. Research has found that mentoring greatly increases the chances of an individual stay on a career path and being successful.

Internationally, there are concerns about the increasing gap in the supply of IT personnel. Nigeria is not an exception to this. Fernández (2013) reported that going by the local production of IT graduates in the US, by 2023 there will be a shortfall of over 50% of the needed 150,000 IT personnel. Such statistics may not be available in Nigeria but, at least, similar trend can be assumed. Many organisations have taken these projections seriously and have begun work to forestall the looming crisis. Some notable initiatives are focused on bringing more women into IT by establishing committees to address this for example Association of Computing Machinery Women (ACM-W), Anita Borg Foundation, Working to Advance STEM Education for African Women (WaaW) Foundation, Computing Research Association Women (CRA-W) all have focused programs to encourage women to get in IT. Others are focused on mentoring STEM (Science, Technology, Engineering and Mathematics) students/graduates generally.

It is also notable that many universities across the world also have in-house mentoring programs. It is difficult to say how effective these have been but, the sheer fact that they exist throws more weight to the argument that mentoring is a very important activity within the university. Going from the MentorNet success story, one can conclude that mentoring is a very effective way of building human capital.

1. The MentorNet Model

MentorNet (mentornet.org) is non-profit organisation that seeks to support students studying Science, Technology, Engineering and Mathematics (STEM) courses in US universities to complete their studies and go on to STEM carers. MentorNet claims that 93.5% of its over 30,000 mentees completed graduate studies and stayed on in Science, Technology, Engineering and Mathematics (STEM) careers 3 years after mentoring compared to 39% of all students registered in US universities since its inception in 1997 (Fernández, 2013; MentorNet, 2012). MentorNet started out with a focus on supporting women and underrepresented groups but has now expanded to support any student studying at a US College or University.

2. *How MentorNet works:* MentorNet provides a web-based platform through which protégés and volunteer mentors connect. The system works in 7 steps viz:

Figure 2: MentorNet Process Flow (www.mentornet.org)

i. Mentor and Mentee register on MentorNet platform
ii. Mentors and Protégés are trained by MentorNet on how to make the mentoring relationship effective.
iii. MentorNet recommends mentors to the registered mentee based on mentor and protégés characteristics and needs.
Protégés reviews recommendation and makes a choice
iv. Mentor reviews mentorship request and accepts or decline.
   a. If mentor declines, the system repeats step for by recommending a new set of mentors.
   b. If mentor accepts, MentorNet launches the 4-month mentoring relationship. The mentor and protégés will be able to communicate through MentorNet's platform or use other media such as Skype, Google hangout etc.
v. MentorNet guides the discussions by sending regular email prompts that serve as discussion starters
vi. Protégés re-enter MentorNet as mentors. (MentorNet, 2015)

III. METHODOLOGY

In order to achieve the aim and objectives of this research, an exploratory pilot survey was carried out on a range of respondents who had graduated from computer science and similar programmes in Nigerian Universities. The survey sought to elicit the overall experience of students and supervisors during the final year project. The survey also tried to discover the mind set with which the students and supervisors approached the final year project. Finally, the survey sought to assess the perceived gains from the final year project.

A. The Questionnaire

Google forms were used to create the questionnaire which was disseminated online through email lists and social media. Two sets of questionnaire were developed. One was targeted at Final Year Students and Graduates, a second one targeted at

academics who had supervised final year projects. The questionnaire asked two categories of questions. One section elicited demographic information while the second section posed questions to elicit the experience of the respondents on the FYP and how that has affected their career development. Likert style questions on a 5 point scale were used as well as some open ended questions.

IV. DISCUSSION OF RESULTS

A. Demographic Information

TABLE 3: LEVEL AND COURSE OF STUDY

		Freq.	%	Valid %	Cum %
Valid	Applied Mathematics (M.Sc.	1	3.1	3.1	3.1
	Computer Science, I.T and related (OND/HND)	1	3.1	3.1	6.3
	Computer Science, I.T. and related (B.Sc.)	25	78.1	78.1	84.4
	Computer Science, I. T. and related (MSc)	5	15.6	15.6	100.0
	Total	32	100.0	100.0	

TABLE 4: SEX DISTRIBUTION

		Freq.	%	Valid %	Cum %
Valid	Female	5	15.6	15.6	15.6
	Male	27	84.4	84.4	100.0
	Total	32	100.0	100.0	

TABLE 5: TYPE OF INSTITUTION ATTENDED

		Freq.	%	Valid %	Cum %
Valid	Nigerian Private University	21	65.6	65.6	65.6
	Nigerian Public University	11	34.4	34.4	100.0
	Total	32	100.0	100.0	

TABLE 6: SEX OF SUPERVISOR

		Freq.	%	Valid %	Cum %
Valid	Female	8	25.0	25.0	25.0
	Male	24	75.0	75.0	100.0
	Total	32	100.0	100.0	

B. Experience of final year project

KEY TO TABLES

Item	Key
Strongly Disagree	SD
Disagree	D
Neither Agree/Disagree	NAD
Agree	A
Strongly Agree	SA

TABLE 7: STUDENT POSSESSES SKILLS NEEDED TO COMPLETE FYP

		Freq.	%	Valid %	Cum %
Valid	SD	2	6.3	6.3	6.3
	D	7	21.9	21.9	28.1
	NAD	12	37.5	37.5	65.6
	A	8	25.0	25.0	90.6
	SA	3	9.4	9.4	100.0
	Total	32	100.0	100.0	

TABLE 8: SUPERVISOR HELPED STUDENT GET NEEDED SKILLS

		Freq.	%	Valid %	Cum %
Valid	SD	2	6.3	6.3	6.3
	D	8	25.0	25.0	31.3
	NAD	9	28.1	28.1	59.4
	A	7	21.9	21.9	81.3
	SA	6	18.8	18.8	100.0
	Total	32	100.0	100.0	

TABLE 9: SUPERVISOR ENCOURAGES STUDENT ON FYP

		Freq.	%	Valid %	Cum %
Valid	SD	3	9.4	9.4	9.4
	D	2	6.3	6.3	15.6
	NAD	9	28.1	28.1	43.8
	A	8	25.0	25.0	68.8
	SA	10	31.3	31.3	100.0
	Total	32	100.0	100.0	

TABLE 10: FYP IS A GOOD OPPORTUNITY TO BUILD MENTORSHIP RELATIONSHIP

		Freq.	%	Valid %	Cum %
Valid	SD	3	9.4	9.4	9.4
	D	3	9.4	9.4	18.8
	NAD	7	21.9	21.9	40.6
	A	9	28.1	28.1	68.8
	SA	10	31.3	31.3	100.0
	Total	32	100.0	100.0	

TABLE 11: FYP FOSTERS CLOSER RELATIONSHIP WITH SUPERVISOR

		Freq.	%	Valid %	Cum %
Valid	SD	2	6.3	6.3	6.3
	D	4	12.5	12.5	18.8
	NAD	10	31.3	31.3	50.0
	A	9	28.1	28.1	78.1
	SA	7	21.9	21.9	100.0
	Total	32	100.0	100.0	

TABLE 12: SUPERVISOR IS TOO BUSY TO SEE STUDENT'S FYP

		Freq.	%	Valid %	Cum %
Valid	SD	17	53.1	53.1	53.1
	D	8	25.0	25.0	78.1
	NAD	3	9.4	9.4	87.5
	A	1	3.1	3.1	90.6
	SA	3	9.4	9.4	100.0
	Total	32	100.0	100.0	

TABLE 13: SUPERVISOR CREATED SUPPORTIVE ENVIRONMENT FOR FYP

		Freq.	%	Valid %	Cum %
Valid	SD	4	12.5	12.5	12.5
	D	2	6.3	6.3	18.8
	NAD	11	34.4	34.4	53.1
	A	9	28.1	28.1	81.3
	SA	6	18.8	18.8	100.0
	Total	32	100.0	100.0	

Effect of FYP experience on career projections

TABLE 14: FYP WILL LEAD TO CAREER IN IT

		Freq.	%	Valid %	Cum %
Valid	SD	3	9.4	9.4	9.4
	D	5	15.6	15.6	25.0
	NAD	6	18.8	18.8	43.8
	A	11	34.4	34.4	78.1
	SA	7	21.9	21.9	100.0
	Total	32	100.0	100.0	

TABLE 15: STUDENT WILL MAINTAIN RELATIONSHIP WITH SUPERVISOR AFTER FYP

		Freq.	%	Valid %	Cum %
Valid	SD	7	21.9	21.9	21.9
	D	2	6.3	6.3	28.1
	NAD	8	25.0	25.0	53.1
	A	7	21.9	21.9	75.0
	SA	8	25.0	25.0	100.0
	Total	32	100.0	100.0	

TABLE 16: SUPERVISOR HAS INFLUENCED CHOICE OF CAREER

		Freq.	%	Valid %	Cum %
Valid	SD	6	18.8	18.8	18.8
	D	4	12.5	12.5	31.3
	NAD	9	28.1	28.1	59.4
	A	7	21.9	21.9	81.3
	SA	6	18.8	18.8	100.0
	Total	32	100.0	100.0	

The data size was 32. This corresponds to the number of submitted responses, which was spread fairly demographically. 84.4% were male and 15.6% were female, 65.6% attended private university while 34.4% attended public universities in Nigeria. 75% of them had male supervisors while 25% had female supervisors.

The tables presented above show that although only 34.6% (table Question 7) of students felt they had the skills to complete their project at the beginning, and only 40.7% (table Question 8) got help from their supervisor to upgrade their skills, they still felt that the environment was relatively supportive (46.9%) (Table Question 13) and that their supervisor was interested in their work (56.3% from Table 9 above). They, 59.3% (table Question 11) also felt that the FYP helped them build closer relationship with their supervisor than other academics in the department.

Despite the challenges, 56.3% state that their FYP has encouraged them to continue in IT. However, only 40.7% said they have been inspired to continue in IT career by their supervisors. In spite of this however, 46.9% said they would maintain contact with their supervisor after graduation.

C. FYP Influence on future career choice

Table 17: Pearson's Correlations

		1	2	3	4	5	6	7	8	9
1	Pearson Correlation	1	-.102	.789**	.604**	.696**	.596**	.789**	.287	-.202
	Sig. (2-tailed)		.579	.000	.000	.000	.000	.000	.112	.267
	N	32	32	32	32	32	32	32	32	32
2	Pearson Correlation	-.102	1	-.161	-.423*	-.384*	-.469**	-.341	-.323	.144
	Sig. (2-tailed)	.579		.380	.016	.030	.007	.056	.071	.430
	N	32	32	32	32	32	32	32	32	32
3	Pearson Correlation	.789**	-.161	1	.522**	.586**	.436*	.560**	.148	-.122
	Sig. (2-tailed)	.000	.380		.002	.000	.013	.001	.419	.506
	N	32	32	32	32	32	32	32	32	32
4	Pearson Correlation	.604**	-.423*	.522**	1	.878**	.866**	.802**	.340	-.103
	Sig. (2-tailed)	.000	.016	.002		.000	.000	.000	.057	.575
	N	32	32	32	32	32	32	32	32	32
5	Pearson Correlation	.696**	-.384*	.586**	.878**	1	.876**	.880**	.296	-.162
	Sig. (2-tailed)	.000	.030	.000	.000		.000	.000	.099	.375
	N	32	32	32	32	32	32	32	32	32
6	Pearson Correlation	.596**	-.469**	.436*	.866**	.876**	1	.752**	.327	-.013
	Sig. (2-tailed)	.000	.007	.013	.000	.000		.000	.068	.943
	N	32	32	32	32	32	32	32	32	32
7	Pearson Correlation	.789**	-.341	.560**	.802**	.880**	.752**	1	.551**	-.228
	Sig. (2-tailed)	.000	.056	.001	.000	.000	.000		.001	.209
	N	32	32	32	32	32	32	32	32	32
8	Pearson Correlation	.287	-.323	.148	.340	.296	.327	.551**	1	.026
	Sig. (2-tailed)	.112	.071	.419	.057	.099	.068	.001		.887
	N	32	32	32	32	32	32	32	32	32
9	Pearson Correlation	-.202	.144	-.122	-.103	-.162	-.013	-.228	.026	1
	Sig. (2-tailed)	.267	.430	.506	.575	.375	.943	.209	.887	
	N	32	32	32	32	32	32	32	32	32

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).

Key to variables in correlation table

Question	Code
My supervisor encourages me in my work	1
I do not plan to build a career in computing/IT after graduation	2
My supervisor created a supportive environment in which work	3
I see my supervisor as my mentor	4
I will keep in touch with my supervisor after graduation	5
My supervisor has made a great impact that influences the choice of my career	6
I will like to do more work (further research or study) with my supervisor	7
Because of this project I am encouraged to pursue a career in computing	8
My supervisor is too busy to see my work	9

It was noticed that from the Pearson correlation above that variable 2 is negatively correlated with all other variables except variable 9. This shows that when student has a positive FYP experience whether through the student's personal effort (variable 8) or the supervisor's (variable 1 and 3), he/she is more likely to continue in IT career.

The positive correlation between variable 2 and 9 however shows the detrimental effect of a negative experience where the student received poor supervision. Such student was not encouraged to continue in the IT field.

D. Supervisors' Attitude to FYP

TABLE 18: SUPERVISOR ADVICES STUDENTS ON HOW TO BUILD IT CAREER

		Freq	%	Valid %	Cum %
Valid	A	2	28.6	28.6	28.6
	SA	5	71.4	71.4	100.0
	Total	7	100.0	100.0	

Table 19: Supervisor Mentors Supervisee Actively

		Freq.	%	Valid %	Cum %
Valid	NAD	2	28.6	28.6	28.6
	A	1	14.3	14.3	42.9
	SA	4	57.1	57.1	100.0
	Total	7	100.0	100.0	

Table 20: Student Are Useful to Supervisor's Research

		Freq.	%	Valid %	Cum %
Valid	NAD	4	57.1	57.1	57.1
	A	1	14.3	14.3	71.4
	SA	2	28.6	28.6	100.0
	Total	7	100.0	100.0	

The data on supervisors was very small with just seven (7) responses. However, two data are worth presenting. 100% of supervisors declared that they actively advice their students in building their career (Table 18). 71.4% say the actively mentor their supervisees (Table 19). 57.1% of them are however undecided about if students helpful for their research while, 42.9% agree that students are useful (Table 20). There could be underlying factors for these results. The sample is not sufficiently large to draw conclusions.

V. CONCLUSION AND RECOMMENDATIONS

A lot of studies have been carried out in developed countries to see to the improvement of the FYP experience. Many questions have been raised as to its importance and its structure (Cowei, 2005). In Nigeria however, no such study has been undertaken. It is important to focus some research energy in this regard as well as other aspects of computer science education. It is common knowledge in Nigeria today that many computing students are graduating without grounding in requisite market ready IT skills. This has be corroborated by the results of this study. The computing higher education curriculum should therefore, be revisited and fine-tuned so that our graduates can be more relevant to the IT sector both in industry and academics. This recommendation is also made in (Osisanwo, Ajaegbu, & Akande, 2014) who concluded that IT students in the university are more consumers of ICT that producers of ICT tools. They also recommended that the university curriculum be revised to be more problem-driven i.e. students should be taught to apply their knowledge to solving practical problems. To this end, the FYP will then be a real capstone showcasing the ability and potential of students to prospective employers.

This research concludes that the FYP experience has a great impact on student's desire to continue in IT career. Importantly, this work agrees with (Pillai, 2011), that the attitude of the supervisor has a momentous impact on the overall experience of the student on the FYP as well as future career decisions. Therefore, the FYP should be given more attention, resources and monitoring to ensure that students have a good experience.

The following are therefore recommended:

- More collaborative research needs to be done to find out more effective ways of using the final year project as a true capstone for our students.
- Supervisors should actively mentor students and encourage them to continue their career in IT
- The content and delivery of the IT curriculum should be revised to ensure that students are being groomed in requisite skills.
- The NUC should revise its regulation on components of computing/ IT degrees assessment.
- Formal mentoring programmes should be established in all tertiary institutions.
- A mentorship system can also be created to enhance the mentoring programme. This could be a web-based solution to which all graduates of computing can be registered and matched with mentors from across the country.
- Industrial partners should be engaged during the FYP so that students can work on actual problems and gain experience of developing industrial grade solutions.

REFERENCES

[1] Cowei, R. (2005). Survey of final year projectwork in Uk University Biosciences departments. Retrieved April 9, 2015, from biosciences.heacademy.co.uk/events/dur05.aspx

[2] Department of Education and Training (Australia). (2002). Employability Skills for the future.

[3] Fernández, M. (2013, October). A Path Between: Mentoring the Next Generation of Computing Professionals. *Computing Research News*.

[4] Halliday, D. (2005). From final year project to employment. Retrieved April 9, 2015, from bioscience.heacademy.ac.uk/events/dur05.aspx

[5] Marriam-Webster. (2015). Merriam-Webster dictionary.

[6] MentorNet. (2012). *The MentorNet Intervention: A Scalable E-mentoring Program to Support Student Degree Completion and Provide a Pathway from College to Career*.

[7] MentorNet. (2015). How it works. Retrieved April 15, 2015, from http://mentornet.org/howitworks/index.html

[8] Osisanwo, F. ., Ajaegbu, C., & Akande, O. (2014). Nigeria Youth: major contributor to ICT tools or major consumer of ICT. In *Proceedings of the 25th Nigeria Computer Society (NCS) National Conference* (pp. 46 –54).

[9] Pillai, P. (2011). Outduction : Enhancing the Final Year Experience The Final Year Project Experience, 1–13.
[10] Ryder, J. (2004). What can students learn from final year research proects? *Bioscience Education EOurnal*, *4*(November).
[11] Salem University. (2011). *Salem University Handbook (2011-2014 Edition)*.
[12] Shafie, A., Janier, J. B., & Herdiana, R. (2008). Students' Learning Experience on the Final Year Project for Electrical and Electronics Engineering of Universiti Teknologi PETRONAS, 1–5.
[13] Thomas, K. (2008). *Understanding Capstone : examining the final year learning experience*.
[14] Universal Business School Sydney. (2010). What employers want. Retrieved April 10, 2015, from www.ubss.edu.au/Content.aspx?pid=199
[15] Worsely, A. (2005). Final year projects, employability and the real world. Retrieved April 9, 2015, from http://biosciences.heacademy.ac.uk/events/dur05.aspx