Career Choice Determinants and Academic Achievement of First Year Science Education Students of University of Uyo, Akwa Ibom State, Nigeria

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Abstract

The study investigated career choice determinants and academic achievement of first year science education students of the University of Uyo. It was an ex-post facto research design with three research questions and three hypotheses guiding the study. The population of the study was 634 undergraduate science education students in the 2016/2017 academic session. One hundred and twenty-four (124) first year students randomly selected across the five units of the department (integrated science, physics chemistry, biology and mathematics) formed the sample size for the study. Questionnaire was the instrument for data collection. The data collected were analysed using mean and standard deviation, ANOVA and MANOVA. Instrument reliability using Cronbach alpha reliability coefficient was 0.82. The findings of the study showed that students find themselves tied down to rigid programme schedules that do not give them room to fully concentrate on their areas of specialization. This adds to schooling burden and dampens the excitement they originally came into the programme with. The study also found that due to lack of information on various career choices students lose interest easily even though their choices were on the career choices they made. Parental desire causes students to come out with poor results at the end of semester and graduation. It was also found that gender is not a significant factor on the problems encountered. The result further showed that different units of the department have significant influence on the problems encountered. It was recommended amongst others, that proper orientation/counseling be given to students to enable them cope with workload challenges at the commencement of the programme in the different units of the department.

Keywords: Career-choice, area of specialization, parental desire, students' interest

Introduction

Many first-year university students find it difficult transiting between senior secondary school and the university. They find it very challenging to fit into the tertiary system. Students just leaving secondary school find it a herculean task to make career choices as they have to choose from a large number of courses. Choosing a career choice in life has never been an easy task especially for young secondary school leavers because of its relevance to successful living. A good career choice is a strong determinant

for successful living, careful thoughtfulness, wisdom and focus/concentration. Career choice plays a crucial role in students' achievement as it facilitates students job opportunities in the labour market. Shumba and Naong (2012) observed that many research studies including that of (Issa and Nwalo 2008, Macgregor 2007, and Watson 2010) have revealed that new students all over the world are usually in a dilemma while making a career choice decision in their lives. In most cases, prospective undergraduate students see the choice of careers, subjects and courses of study, and the subsequent career paths to follow as a nightmare (Issa and Nwalo 2008). This undermines their future career aspirations and limits the experiences they need for the work place.

Presently, many first-year science education students of the university of uyo are choosing careers from science education courses without due consideration for their future aspirations and what the courses actually entails. In such instances, some of the students find it difficult to cope with the challenges of academic workload involved in the chosen courses, thus, perform poorly in the courses. This affects their grade levels at the end of their four-year career on the programme. In the science education department of the University of Uyo, most first year students are advised to withdraw after two sessions as they cannot cope with the challenges of academic workload in their chosen career choice. At other instances, some students are allowed probation to carry less credit workload but some of these students are unable to pass or improve on their performances. This has become worrisome to both lecturers and students. Science education department of the University of Uyo runs a five-unit programme which include; integrated science, physics, biology, chemistry and mathematics. These science education courses are to prepare students for lifelong career opportunities and to produce graduate teachers in all relevant fields of science education with a view to meeting the demands of the labour market in Nigeria. Students enroll in the accredited degree programmes of the science education department of the university to acquire skills to prepare themselves to face the realities of a changing professional global competitive market.

Regrettably, as researchers observed, that more than 63% percent of these first year students carry-over most of their courses or score very low grades. If students are unable to overcome these problems they are asked to withdraw from the course or shop for any other course in another department willing to admit them at a lower level. Again, most of these science education graduates do not take up teaching appointments after graduation because of their poor performances at the end of their graduation, but rather find themselves in different fields outside their area of specialization. This confirms that they made wrong career choices as they cannot fit properly into the teaching profession they originally applied to study. Various factors may give rise to the above situation.

Subject area specialization is sine-qua-non for students' academic attainment and career choice opportunities for useful living in the society. Specialization is a form of training given to individuals to meet growing needs for quality. Students come to school with a great deal of knowledge and find ways of expressing this, however, little of this comes into play as the education of their minds start. They come in with various talents and interests, more than equipped with enthusiasm to be trained on specific areas of academic practices in order to acquire skills to follow their dreams. As they start the programme, they find that there are more number of subjects with more tuition in every area for a better grade and score

(Mukherjee, 2013). This make the students spend more time in class due to the number of course content. Students find themselves tied down to rigid programme schedules that do not give them room to fully concentrate on their areas of specialization. This adds to schooling burden and dampens the excitement they originally came into the programme with. Heavy workload contained for the course get the students overworked instead of finding time to refresh and relax. Again students experience much stress as they try to cover grounds due to increased workload and tight schedules. This excessive number of courses adds to the burden and dampens the excitement students originally came into the programme with. The University of Uyo admits students into its science education department and makes available to its students, core areas of specialization as well as the advantages, privileges and courses of studies available. Students are required to specialize in these chosen courses and pursue their career interest. Students are admitted into courses in science education programmes every year and given orientation on the rules, guidelines and regulations outlined in students' handbook. This with a view to effectively pursue careers in their areas of specialization and successfully graduate out of the department. They are also expected at the end of their chosen careers to have acquired basic skills of specialization and also handle new assignments. There is a policy in some Nigerian universities. Students who score high in their chosen fields of specialization but could not make the cut-off mark are given other course option outside the chosen field of study specialization. This policy hampers students choice of area of specialization as it has direct influence on their later occupational choices. Unfortunately, most of these students end up with poor grades even after spilling-over one or two years.

Students' interest in career choice is a very important aspect that affects the affective domain of a child's life. It is defined as a feeling of wanting to learn more about something or to be involved in something (Merrian-Webster's Learner's Dictionary, 2011). Career choice interest is characterized by increased attention and concentration in classroom and academic activities. Interest is a motivational factor and an emotionally-oriented character which determines the students' mental strength geared towards tackling educational activities. Okoro (2011) opined that interest of students can influence the value they have for an activity. The author, further states that interest guide and encourage students to think critically and to keep trying. High interest level improves students' achievement while high achievement promotes interest. On the other hand, low interest level retards learning and results in poor achievement. If there is no interest in a subject, a learner does not derive benefit and satisfaction from the lesson. He resorts to rote learning just to end the course and tends to forget what is taught. In most cases, students can move from learning science to doing an art course. This does not encourage good education on career choice. Nyamwange (2016) posits that before career choices are made, students are often provided with a list of careers from which they opt. Nevertheless, due to lack of information on various career choices available in the university and the kind of ideal job they would like to engage in, students lose interest easily even though their choices were on the career choices. At the end of the programme they drop out of school or are withdrawn. This course of action forces students into careers that they may neither be interested in nor capable of doing. This affects lifelong development.

Parental desire is a factor that may influence career choice. According to Issa and Nwalo (2008) many

youths in Nigeria go into unsuitable careers due to ignorance, inexperience, peer pressure, advice from friends, parents and teachers or as a result of the prestige attached to certain jobs without adequate guidance and career counseling (Salami 1999 in Issa and Nwalo). Bojuwoye and Mbanjwa (2006) report that parents have significant influence on their children career decisions. This influences their productive output. In addition, it has been observed that some students are pushed into some careers due to job related decisions. For instance, some students choose education courses because of the job opportunities in the field. Others find themselves in a course due to school administrative policies. According to Yong (1996) educational achievement of students are closely related to their abilities, and this reflects in their school grades and self-rating on school abilities and intelligence. Such scenarios play out in science education department of the University of Uyo because, often, learners are compelled to follow predetermined career path without the consideration of the child's potential, choices, and academic abilities. A family where both parents may be engineers pressure their offsprings to take to engineering even when such children have no such aptitudes nor possess requisite abilities. Children have choices and should be given a chance to make decisions concerning their future without compromising their parental wisdom. Not allowing the child's decision may lead to failure. Frustration sets in with accompanying decline in productivity and performance. Students are left with no choice, as they sit through countless lectures and spend hours studying for a course they may not need for life (*flexisaf. com/parental influence -students-career-choice).* They come out with poor results at the end of semester and graduation. Studies have examined the influence of parents on children's career choice and found that career choice and aspiration of children come from the influence of their home backgrounds. This may be one of the reasons children are pushed into courses they may not originally have aspired. According to http:f/ynaijx.com/opinionnigerian-youth-and-the-dilemma-of-a-career-choice, most Nigerian parents are selfish and practically select what and what may not be studied by their wards. They want societal recognition concerning them and their children without due consideration to the factors at play, especially the question of the child's comfort in that field. These have serious consequences on the child's career choice and future aspirations.

A discourse of this nature cannot be concluded without a debatable issue like gender being looked into. Many research works have been carried out on the influence of gender on the academic achievement of students in different academic disciplines. This has been inconclusive and therefore makes it imperative that this study also look into the influence of gender on students' career choice and their academic achievement. This work therefore, determined to look into science education students' career choice influence and their academic achievement with specific focus on first year students of science education department of the University of Uyo, Akwa lbom State, Nigeria.

Statement of the Problem

First year students of the department of science education, University of Uyo, come in with enthusiasm to start a career, but after a session their results show poor performance. This calls for concern. As an emerging economy Nigeria needs science students with highly specialized knowledge in different areas of science disciplines to transform its mono-oil-economy to a thriving industrialized one. It is therefore, expected that any prospective first year student in pursuit of academic quality has to make good his/her

chosen career choice with a view to performing creditably in any programme of choice all things being equal. However, this is contrary to what obtains among first year students of science education department in the University of Uyo, Akwa Ibom State. The poor performances of the students and the laissez-faire attitude of most of them as concerns students' career choice with particular reference to gender and different units of the department as well as academic achievement in their chosen programmes. This study will consider three out of the five units of the department.

Purpose of the study

Specifically the study investigated:

1. The factors that influence the career choice of first year science education students of the University of Uyo, Akwa Ibom State.
2. Whether gender has any influence on first year science education students achievement in their career choice pursuit.
3. Whether the different units of science education has any influence on first year students' achievement in their career choice pursuit.

Research Questions

To guide the study; three research questions were posed

1. To what extent are first year science education students' career choice influenced by factors such as area of specialization, students' interest and parental desire?
2. What influence does gender have on first year science education students' academic achievement given their career choice?
3. What differences exist in the achievement of first year science education students from different units (chemistry, biology, integrated science) given their career choice?

Research Hypotheses

The study tested the following null hypotheses'

1. No significant difference exist in the academic achievement of first year students whose career choice were influenced by area of specialization, parental desire and students' interest.
2. There is no significant difference in the academic achievement of male and female first year science education students given their career choice.
3. No significant difference exists in the achievement of first year science education students from different units (chemistry, biology, integrated science) given their career choice.

Research Procedure

The study used a survey research design. The population consisted of 634 science education students. Simple random sampling technique was employed to select one hundred and twenty four (124) students from three out of its five units (chemistry, biology, and integrated science) and across gender of the University of Uyo, Akwa Ibom State. This formed the sample for the study. Three research questions and three hypotheses guided the study. A questionnaire instrument consisting of two-parts was used to obtain data for the study. Part 1 consisted questions on demographic information from students such as home literacy background, location of residence and the second part contained questions related to students' academic achievement, educational and career-choice aspirations. The students' academic achievements were assessed using their terminal semester results. Their final grades were collated with grade ranges between A-F. The data collected were analysed using mean and standard deviation, ANOVA and MANOVA. The instrument was validated by three lecturers from science education, measurement and evaluation, and guidance and counseling departments all from the Faculty of Education, University of Uyo. The reliability of the instrument was obtained using Cronbach alpha coefficient statistics which gave a reliability coefficient of 0.82. The research hypotheses were tested at .05 level of significance.

Research Question One

What is the influence of career choice determinants (area of specialization, students' interest and parental desire) on students' academic achievement?

Table 1: Mean and standard deviation of achievement based on career choice determinants

Career choice determinant	N	$\bar{X}$	SD
Area of specialization	54	2.43	0.52
Parental desire	41	2.20	0.44
Students' interest	29	2.11	0.38
Total	**124**	**2.27**	**0.48**

Data in Table 1, showed the mean achievement (2.43) of students whose career choice was as a result of area of specialization is greater than that of parental desire and students' interest. The mean achievement (2.20) of students whose career choice was as a result of parental desire is greater than those whose career choice was through students' interest.

Research Question Two

What influence does gender have on first year science education students' academic achievement given their career choice?

Table 2: Mean and standard deviation of first year students' academic achievement based on gender given their career

Career choice	Gender	N	$\bar{X}$	SD
Area of specialization	Male	17	2.44	0.60
	Female	37	2..44	0.49
Parental desire	Male	17	2.38	0.32
	Female	24	2.07	0.49
Students' interest	Male	14	2.16	0.42
	Female	15	2.08	0.36
Overall	Male	48	2.34	0.47
	Female	76	2.25	0.50

Data in Table 2 showed that male students whose determinants was area of specialization had a mean of 2.44 while their female counterparts had a mean of 2.44. Male students whose determinant was parental desire had a mean of 2.38 while their female counterparts had a mean of 2.07. Male students whose determinant was students' interest had a mean of 2.16 while their female counterpart had a mean of 2.08. On the overall, male students had a mean of 2.34 while their female counterparts had a mean of 2.25.

Research Question Three

What differences exist in the academic achievement of first year science education students from different units (chemistry, biology, integrated science) given their career choice?

Table 3: Mean and standard deviation of first year students' academic achievement based on units (Chemistry, Biology, Integrated Science) given their career choice

Career choice	Science Education Units	N	$\bar{X}$	SD
Area of specialization	Biology	23	2.70	0.45
	Chemistry	23	2.32	0.50
	Integrated Science	8	2.01	0.32
Parental desire	Biology	14	2.40	0.35
	Chemistry	18	2.12	0.43
	Integrated Science	9	2.01	0.52
Students' interest	Biology	11	2.17	0.41
	Chemistry	10	2.27	0.35
	Integrated Science	8	1.83	0.23
Overall	Biology	48	2.49	0.46
	Chemistry	51	2.24	0.45
	Integrated Science	25	2.00	0.38

Data in Table 3 showed that Biology, Chemistry and Integrated Science students whose career choice determinant was area of specialization had mean of 2.70, 2.32 and 2.01 respectively. Biology, Chemistry and Integrated Science students whose career choice determinant was parental desire had mean of 2.40, 2.12 and 2.01 respectively. Biology, Chemistry and Integrated Science students whose career choice determinant was students' interest had mean of 2.17, 2.27 and 1.83 respectively. On the overall, Biology, Chemistry and Integrated Science students had mean of 2.49, 2.24 and 2.00 respectively.

Hypothesis One

First year science education students' career choice determinants (area of specialization, students' interest, parental desire) do not significantly influence their academic achievement.

Table 4: Analysis of variance of first year science education students' academic achievement based on their career choice determinants

Source of variation	Sum of squares	df	Mean Square	F	Sign at P<.05
Between groups	2.52	2	1.26	5.48*	.005
Within group	27.80	121	0.23		
Total	30.31	123			

Data in table 4 show that the calculated probability value (.005) is less than the alpha level (.05). Therefore, the null hypothesis is rejected. This implies that first year science education students career choice (area of specialization, students' interest, parental desire) do significantly influence their academic achievement. In order to ascertain the direction of significance, the Scheffe' Post-hoc test was considered for the pair wise comparison test as shown in table 5.

Table 5: Summary of Scheffe' post-hoc comparison of first year science education students' academic achievement classified by the career choice

(i) Career Choice	(j) Career Choice	Mean Difference (i-j)	Std Error	Sign at P<.05
Area of specialization	Parental desire	0.23	0.10*	.046
	Students' interest Area of Specialization	0.31	0.11*	.013
Parental desire	Students' interest	-0.23	0.10*	.046
	Area of specialization	0.07	0.12	.791
Students' interest	Parental desire	-0.31	0.11*	.013
		-0.07	0.12	.791

* = Significant at .05 level of significance

Data for mean differences shown in table 5 are 0.10 for area of specialization and parental desire, 0.11 for area of specialization and students' interest, and 0.07 for parental desire and students' interest. The level of significance displayed in table 5 showed that first year students whose career choice was on area of specialization performed significantly better than those whose career choice was as a result of parental desire and students' interest while no significant difference exist between the academic achievement of first year science education students whose career choice was as a result of parental desire and students' interest.

Hypothesis Two

There is no significant difference between the academic achievement of first year male and female science education students given their career choice.

Table 6: Analysis of variance of first year science education students' academic achievement based on gender given their career choice

Source Variation	SS	df	MS	F	Sign at P<.05
Combine	2.96	3	0.99	4.33	.006
Career choice	2.51	2	1.25	5.53	.005
Gender	0.43	1	0.44	1.97	.159
Career choice * Gender	0.53	2	0.26	1.18	.307
Mode	3.49	5	0.69	3.08	.011
Residual	26.79	118	0.22		
Total	**30.29**	**123**	**0.24**		

Data in table 6 show that the calculated probability value (.159) is greater than the alpha level (.05). Therefore, the null hypothesis is accepted. This implies that there exist no significant difference between the academic achievement of first year male and female science education students given their career choice.

Hypothesis Three

There is no significant difference among the academic achievement of chemistry, biology, and integrated science education students given their career choice.

Table 7: Analysis of variance of first year science education students' academic achievement based on gender given their career choice

Source Variation	SS	Df	MS	F	Sign at P<.05
Combine	6.77	4	1.69	8.67	.000
Career	2.51	2	1.25	6.43	.002
Units	4.27	2	2.13	10.93	.000

Career	* Units	1.06	4	0.26	1.36	.247
Model		7.85	8	0.97	5.02	.000
Residual		22.43	115	0.20		
Total		**30.29**	**123**	**0.24**		

Table 7 showed that the calculated probability (.000) for units is less than the alpha .05. Therefore, the null hypothesis is rejected. This implies that there exist significant difference among the academic achievement of chemistry, biology and integrated science education students given their career choice. In order to ascertain the direction of significance, the Scheffe' post-hoc pair wise comparison test was considered as shown in table 8.

Table 8: Summary of Scheffe' post-hoc comparison test of science education students' achievement based on units (Biology, Chemistry, Integrated Science)

(i) Career Choice	(j) Career Choice	Mean Difference (i-j)	Std Error	Sign at P<.05
Biology	Chemistry	0.24*	0.11	.020
	Integrated Science	0.53*	0.11	.000
Chemistry	Biology	-0.24*	0.11	.020
	Integrated Science	0.28*	-0.11	.030
Integrated Science	Biology	-0.53*		.000
	Chemistry	-0.28		.029

* = Significant at .05 level of significance

Data of the mean differences shown in table 8 are 0.24 for biology and chemistry: 0.53 for biology and integrated science, and 0.28 for chemistry and integrated science. The level of significance in table 8 indicated that biology students performed significantly better than those of chemistry and integrated science. The table also showed that chemistry students performed significantly better than integrated science students.

Discussion of Results

The findings of this study have shown that first year science education students career choice determinants (area of specialization, parental desire and students' interest) do not significantly influence their academic achievement. The implication is that though these factors do determine the students career choice, they have not influenced the students' academic achievement in the various science education units. This is contrary to the findings of (Mukherjee, 2013) who posited that as soon as students start the programme, they find that there are more number of subjects with more tuition in every area and this affects their performance for a better grade and score. This also make students spend time in class due to the number of subjects they have to study as they hardly find time to refresh and relax. One can, therefore infer that poor academic achievement from programme overload do influence the students' academic performance and

equally determine their career choice. On the other hand, though it was found that the career choice determinants do not significantly influence the students' academic achievement; students whose career choice were determined by area of specialization performed better than those with students' interest and parental desire while students with parental desire did better than those determined by students' interest. **This go to confirm the fact that personal interest influences one's performance on a job.**

The study findings also showed that gender does not have any significant influence on first year science education students academic achievement based on their career choice. This is contrary to (Salami, 2006) finding that family involvement is the most significant predictor of career choice in gender-dominated occupations. This could be because in a situation where family/parents determine the choice of career for their children, there will be that likelihood that the child's academic performance would be poor since the child's interest may not be there.

The findings of the study that science education students' academic achievement is significantly influenced by the different units of the department can be attributed to the fact that they might not have chosen their right career in life. It also showed that though the units are all in education, the work in some units are tougher and more difficult than the others; and some of these students may have chosen the areas they are not competent enough to study. In other words, the students career choice affect their academic achievement.

Conclusion

Career choice is the responsibility of an individual that should be handled with care. As such, students should be allowed to explore and drive their career-choice path themselves. By so doing, they are able to create decisive pathways for their future relevance.

Recommendations

Based on the findings of this study, it could be recommended that the issue of choosing career by the students of science education should be left in the hands of the students themselves and school guidance counselors to facilitate quality grades, high academic performance and productive lifelong career.

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