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Full Length Research Paper

Career choice and academic performance of Microbiology students in a Nigerian university

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The poor academic performances of Microbiology students in Ahmadu Bello University, Zaria and the increasing number of students transferring to the department prompted this study which determined the effects of the choice of Microbiology as career on the students' academic performance. Eighty five students that consented, out of a total of 106 eligible students that were in 300 level and 400 level in the department were enrolled in the study. A Likert scale questionnaire and students' cumulative grade point average (CGPA) results were used as measuring instrument. Correlation between the students CGPA scores and their career choices were determined using test statistic. The results showed that only 7 (8.2%) of the respondents applied to study Microbiology while 52 (61.0%) applied to study Medicine. About 29.4% of the students felt they were compelled to study Microbiology while 24.7% (21/85) of them had no knowledge of Microbiology before they were admitted. Students who applied for Microbiology and were admitted to study Microbiology had higher CGPA scores hence performed better academically than those who did not (correlation coefficient (ϒ) = 0.0125, α = 0.05). Similarly, the non-transferred students performed significantly (p = 0.000) better (mean score = 2.7134) compared to the transferred students (mean score = 1.8660). Thus, the choice of Microbiology as a career played an important role in the academic performances of the students. This result emphasizes the need for educational administrators, academic planners, and admission officers to carefully admit students according to their programme of choice and the need for teachers to emphasize the importance of Microbiology to create interest in the students.

Key words: Career choice, academic performance, Microbiology, students, university, Nigeria.

INTRODUCTION

Career is the sequence of occupations, jobs, and positions occupied during the course of a person's working life (Super, 1974; Vroom, 1974). Career is tied to occupation, which in turn is defined as one's work activities (Achebe, 1983).

Career choice plays an important role in shaping the attitude of students towards any chosen discipline and in the subsequent achievement attained in the field. Many students fail because of an apparently unsuitable selection of the course of study (Singh, 1968). This may largely be due to the fact that a child's attitude is likely to be affected by his interest in a particular discipline and

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which in turn may affect his performance (von Mizener and Williams, 2009). If students are interested in a field, they are more likely to be successful in that field because interest in a field may produce high motivation.

According to Hewitt (2010), factors influencing career choice can either be intrinsic or extrinsic or both. It has been shown from literature that three areas of students' life affect the career choices they make: environment, opportunity, and personality. All three play varying roles in career outcomes (Borchert, 2002). Some of the main factors among others in deciding career choice include career opportunities (Pawełczyk et al., 2007), prestige (Senf et al., 2003), interest in the course and parental guidance /family influence (Olszewski-Kubilius and Yasumoto, 1994; Oloyede, 1995; Mauldin et al., 2000; Kim et al., 2002; Schnabel et al., 2002; Edwards and Quinter, 2011; Uyar et al., 2011; Reynolds, 2012; Odia and Ogiedu, 2013).

In educational institutions, success is measured by academic performance (Bell, 2013), which generally refers to how well a student is accomplishing his or her tasks and studies (Sharm, 2012) or how well a student meets standards set out by the institution itself (Bell, 2013). Academic performance is the best indicator of potential for success in life; it reflects one's abilities and the qualities it takes to have an excellent academic performance are those required to be successful in life, which include consistency, determination and focus (Abiola, 2012). However, factors such as grades, attendance, standardized tests, and extra-curricular activities can determine the level and quality of students' academic performance (Sharm, 2012).

Microbiology, the study of microorganisms, has a major impact on health and environment and provides useful models for many of the life processes all organisms' experience (Willey et al., 2011; Brooks et al., 2013). Microbiology continues to play a vital role in the field of Science, Genetic Engineering, Nursing, Biotechnology, Agriculture, Human Medicine and in the society at large. As a result, the field of Microbiology has virtually unlimited potential and the need for qualified micro-biologists continues to grow, both for basic research and practical applications. It is therefore important that Microbiology should be given significant and sufficient attention as a step towards biotechnological, molecular and scientific advancement.

The primary objective of Microbiology program is to produce successful graduates who possess substantial knowledge of Microbiology, with the required skills and capabilities demanded by employers. This is usually measured by the academic performance of students. However, it was observed that, there has been decline in the academic performance of Microbiology students as indicated by their low cumulative grade point average (CGPA) scores and many carry over courses seen in the Semester results (Personal observation). In addition, large numbers of students are transferring from other faculties such as Medicine, Pharmaceutical Science and Veterinary Medicine to the Department of Microbiology as a result of withdrawal from these faculties due to inability to make the required CGPA. This indicates that majority of the Microbiology students during the study period did not chose Microbiology as course of study.

This development is a source of concern because in order to meet the demands of employers, Microbiology programs must graduate the best and brightest students with high aptitudes, but decreasing quality may mean the inability to meet the demands of the job market. This study was therefore conducted to determine the effect of the choice of Microbiology as a career on the academic performance of Microbiology students in order to proffer solution to the general observed failure rate and provide further thoughts that would eventually lead to more thorough investigation in the same area.

MATERIALS AND METHOD

Study area and population

The study was conducted in the Department of Microbiology, Faculty of Science Ahmadu Bello University (ABU), Zaria, Nigeria. The department draws her fresh intakes from all over the 36 States of the Federation based on the Federal Government policy on admission. Admission of students poses peculiar problems of its own for the university. The most serious of such problems is the numerous qualified candidates from states other than the catchment or educational disadvantaged states seeking admission, but who cannot get placement due to the large number of applicants from such states. However, the university tries to reflect the diversity of the country in her admission policy as much as possible. But a high number of candidates who apply to the Faculty of Medicine, Pharmaceutical Science and Veterinary Medicine are often admitted to study Microbiology. Generally, less than 10 percent of candidates usually apply to study Microbiology as a discipline.

In October 2002, during 2001/2002 academic session, after obtaining permission from the Head of Department, 100 consenting students out of the total 106 students in both 300 and 400 levels in the department were enrolled in the study. But only 85 students responded and returned the questionnaires. The Department of Microbiology has four levels (100-400). However, only 300 and 400 levels students who met the inclusion criteria for the study were enrolled because 100 level students do not offer any Microbiology course while the 200 level students have not acquired enough CGPA points to determine their performance. Students who transferred to the department from other faculties did not originally apply to study Microbiology; therefore they are referred to as transferred students.

Inclusion and exclusion criteria

Those included in the study were consenting microbiology students who were taking Microbiology courses and had acquired enough CGPA to determine their performance while the exclusion criteria were lack of consent, not taking microbiology courses and insufficient CGPA.

Data collection using questionnaire

A 36 Likert type item questionnaire designed and standardized by

the authors was used to collect bio-data of the students and information used to address the research questions. The students were informed that the questionnaires were for the purpose of research and the problem was brought to their notice. This direct contact method allowed the researcher a chance to explain the Likert attitude scale and answer questions arising from the items. It also encouraged the respondents to answer the question truthfully and carefully. The questionnaire had two sections, A and B. Section A sought the respondents' bio-data while section B sought the respondents' overall view of Microbiology as a discipline under the following headings:

1. Students' Attitude/Interest
2. Career Choice
3. Socio-Economics Image of Microbiology.
4. Role of Microbiology in Science and Health -Sector.
5. Importance of Laboratory Work to Microbiology

In the Likert type scale used in this study adapted from Lent et al. (1991), the respondents were required to agree or disagree with each item by marking 'X' in the appropriate column. The students expressed their feeling on a five (5)-point level as follows: A = strongly agree, B = agree, C = Undecided, D = Disagree, E = strongly disagree. The questionnaire contained some positive and negative directive statements. A positive item was scored by using A=5, B=4, C=3, D=2 and E=1 while reverse score was used for negative items. The purpose of revising the score of negative items was to provide a total score that reflected positiveness towards the object in question. This is based on the fact that, students who like Microbiology would agree with the positive statements and disagree with the negative ones and vice versa as has been shown previously (Cohen and Hanno, 1993; Uyar et al., 2011).

The students' semester results were obtained from the departmental Examination Officer, analysed, and the CGPA was used as a measure of academic performance/achievement in Microbiology. Each student's academic performance (CGPA) was written against his or her personal data. The result was compared with the total score of each student on the questions asked on career choice and Microbiology as a discipline to determine if career choice affected the performance of the student.

Null hypothesis

To focus on the direction of the study, the following Null hypotheses (Ho) were stated for testing:

1. Career choice does not affect the performances of Microbiology students.
2. There is no significant difference in terms of performance between transferred and non-transferred students.
3. Students whose parents were aware of Microbiology as a discipline prior to admission did not perform better than those whose parents were not.

Data analysis

Data obtained were analyzed using SPSS statistical package version 10. Data were reduced to percentages using descriptive statistic and presented in frequency tables and figures. Since the Likert attitude scale was used, it was considered necessary to report percentage responses by combining certain categories of responses; for example, strongly agree and agree were considered as one, disagree and strongly disagree was another and undecided formed the third major category. Pearson Product-Moment Correlation Coefficient and the Student T-Test distribution were used to test the Null hypotheses postulated and to compare the mean scores for significant difference (West, 1988). Any p value ≤ 0.05 was considered significant

Limitation of study

First of all, the study population was small as the number of eligible students in the two levels was small. This suggests the need for further studies with larger number of students from other departments in Faculty of Science to substantiate our findings on the impact of career choice on academic performance of students. Next, the sample was limited only to students from Microbiology; thus, the study cannot be generalized and results may differ in other fields of Science and other Faculty. Hence studies should be conducted to investigate the cause of students' failure in Faculties of Pharmaceutical Science and Medicine that lead to many students transferring to Faculty of Science especially the Department of Microbiology.

RESULTS

The data generated from the questionnaires were analyzed, percentages of responses to each of the items were calculated and the results are presented as follows. The results on personal data from Section A of the questionnaire are shown in Table 1. Thirty three (38.8%) of the students were in 400 level while 52 (61.2%) were in 300 level. Exactly 55.3% (47/85) of the students were transferred students and there were more female (56.5%: 48/85) than male (43.5%: 37/85) students in the department during the study period. Majority of the transferred students (72.3%: 34/47) transferred from the Faculty of Pharmaceutical Science with the least (10.64%; 5/47) from Human Medicine (Figure 1). Only 7 (8.2%) of the respondents applied to study Microbiology while 52 (61.0%) applied to Human Medicine. Further analysis of the results showed that, 75.3% (64/85) of the students and 47.1% (40/85) of their parents had prior-knowledge of Microbiology before they were admitted to the university.

Items 1 through 36 on the Likert scale on Section B of the questionnaire sought respondents' attitude/interest towards the discipline Microbiology. The percentage distribution of the combined categories of the responses is presented in Table 2. Analysis of the results based on career choice showed that most of the respondents (70.6%) were against the statement "I had always wanted to go into Microbiology as a lifelong profession" as opposed to 21.2% who were in agreement and 8.2% who were undecided (Item 2). Although 35.5% of the respondents agreed that they are studying Microbiology because they choose it as a career (Item 33), 29.4% feel they were compelled or forced to study Microbiology (Item 32). Thus about 40% of the respondents agreed they are only studying Microbiology in order to study Medicine afterwards (Item 34).

Analysis of the responses based on the students' attitude towards the course found most (74.1%) of the them describing Microbiology as an interesting pro-gramme with majority believing its study would give them

Table 1. Percentage distribution of respondents according to personal data (N=85).

Variable	F	Percentage
Level		
300	52	61.2
400	33	38.8
Sex		
Male	37	43.5
Female	48	56.5
Transfer Status		
Transfer	47	55.3
Non-Transfer	38	44.7
Programme Applied to Study		
Microbiology	7	8.2
Medicine	52	61.2
Pharmacy	24	28.2
Biochemistry	2	2.4
Knowledge of Microbiology		
Had Knowledge	64	75.3
No Knowledge	21	24.1
Parent's Knowledge		
Had Knowledge	45	52.9
No Knowledge	40	47.1

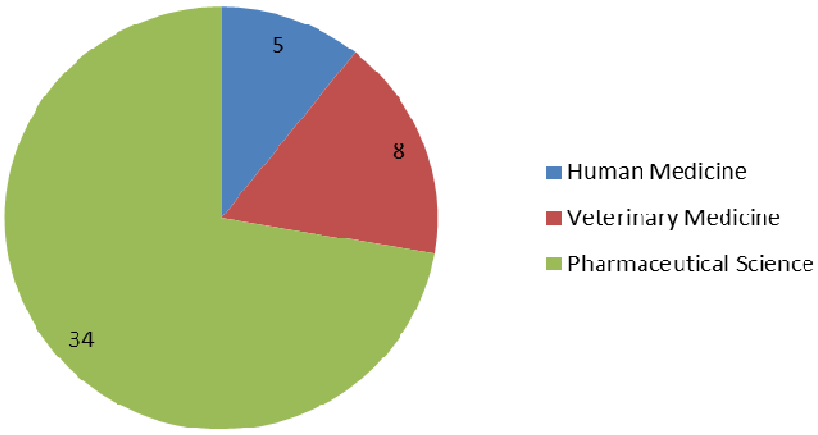

Figure 1. Number of respondents transferred from Faculty (N=47).

greater self-confidence, improve them intellectually and therefore they wanted to know more about the discipline (Items 1,3,5,8,10,14,15,17,18,20 and 23). About 74.1% of the respondents described Microbiology as a respectable profession and 60% of them agreed that it compares favourably well with Medicine, Engineering and other professions (Items 6 and 9). Therefore, nearly all (93%) of the respondents agreed that Microbiology should be converted into a professional programme such as Medicine, Pharmacy, Engineering etc (Item 12).

Table 2. Responses of respondents to each item on the Likert scale whether in favour, undecided or against.

Item	In Favour		Undecided		Against	
	FQ	%	FQ	%	FQ	%
1	72	84.7	4	4.7	9	10.6
2	18	21.2	7	8.2	60	70.6
3	63	74.1	12	14.1	10	11.7
4	82	96.4	2	2.4	1	1.2
5	63	74.1	14	16.5	8	9.4
6	63	74.1	9	10.6	13	15.3
7	67	78.8	12	14.1	6	7.1
8	31	36.5	13	15.3	41	48.2
9	51	60.0	10	11.8	24	28.2
10	63	74.1	11	12.9	11	12.9
11	39	45.9	29	34.1	17	20.0
12	79	93.0	3	3.5	3	3.5
13	79	93.0	3	3.5	3	3.5
14	53	62.4	16	18.8	16	18.8
15	64	75.3	12	14.1	9	10.6
16	22	25.9	15	17.6	48	56.5
17	10	11.8	8	9.4	67	78.8
18	25	29.4	7	8.2	53	62.4
19	22	25.9	8	9.4	55	64.7
20	43	50.6	18	21.2	24	28.2
21	66	77.7	7	8.2	12	14.1
22	44	51.8	11	12.9	30	35.3
23	35	41.2	16	18.8	34	40.0
24	21	24.7	13	15.3	51	60
25	10	11.8	10	11.8	65	76.4
26	34	40.0	16	18.8	35	41.2
27	26	30.6	12	14.1	47	55.3
28	57	67.1	15	17.6	13	15.3
29	35	41.2	16	18.8	34	40.0
30	24	28.2	21	24.7	40	47.1
31	33	38.8	18	21.2	34	40.0
32	25	29.4	10	11.8	50	58.2
33	30	35.3	14	16.5	41	48.2
34	34	40.0	10	11.8	41	48.2
35	17	20.0	29	34.1	39	45.9
36	64	75.3	11	12.9	10	11.8

Key: FQ = Frequency.

Most of the respondents (77.7%) agreed that Microbiology is not a highly price job in Nigerian society and just over half said Microbiologist do the dirty jobs in the laboratory (Items 21 and 23). However, only 38.8% of the respondents agreed that Microbiologists get poorly paid jobs (Item 31). In addition, a significant percentage (41.1) of the respondents believes that Microbiologists find it difficult to secure jobs after graduation (Item 29).

Test of hypothesis

From the results of the analysis of the responses from Item 4 on Section A of the questionnaire and the semester results of the students, it was possible to find out if there was a statistical significant relationship between the choice of Microbiology as a career and the performances of Microbiology students in ABU, Zaria. We correlated the choice of career of each student with the GCPA scores and also provided them with a list of 15 pre-determined factors so that they could indicate how much each of the factors influenced their career choices (Table 2). The calculated correlation coefficient (Υ) in the study was positive (0.0125) but did not reach a significant level ($p = 0.910$). Table 3 presents the summary of the analysis. The observed p-value of 0.910 is greater than 0.05; therefore, there is no statistically significant relationship between career choice and performance of Microbiology students. The hypothesis that there is no statistically significant relationship between career choice and performance of students is confirmed and retained.

The results of the analysis of responses obtained from Item 3 on Section A of the questionnaire and the semester results were used to find out if there was a significant difference in terms of academic performance between transferred and Non-transferred students. The result of the analysis is shown in Table 4. The mean score of the non-transferred students was 2.7134 while that of the transferred students was 1.8660. There was a highly statistically significant difference between the scores of the transferred and non-transferred students ($p = 0.000$) with the calculated t-value of 5.94 greater than the critical t-value of 1.96 at 83 degree of freedom. Therefore, the hypothesis that there is no significant difference in terms of performance between transferred and non-transferred students is rejected.

Data obtained from responses to Item 5 in Section A of the questionnaire were used to find out if there was a statistically significant relationship between the performance of students whose parents were aware of Microbiology before admission and those whose parents were not. Table 4 gives a summary of the analysis. The mean score of the students whose parents were aware of the discipline was higher than those whose parents were not. The critical t-value at 83 degree of freedom is 1.96; therefore the calculated t-value of 2.10 is greater than the critical t-value. In addition, the p-value of 0.039 is less than 0.05. Therefore, the hypotheses that there is no significant difference between the performances of students whose parents were aware of Microbiology as a discipline and those whose parents were not before admission is rejected.

DISCUSSION

Over half of the students in the Department of Micro-

Table 3. Correlation between career choice and academic performance of microbiology students.

Variable	$\bar{x}$	SD	Υ	df	P
Carrier Choice	2.5529	1.0635	0.0125	83	0910
Performance	2.2448	0.7758			

Key: $\bar{x}$ = Mean Score; SD= Standard Deviation; Υ= Correlation Coefficient; df= Degree of Freedom; P= Probability.

Table 4. Analysis of differences in CGPA scores of transfer and non-transfer students and those whose parents had pre-knowledge of microbiology and those whose parents did not.

Variable	$\bar{x}$	SD	SE	t-cal	t-cri	df	p-value
Students' transferred status							
Yes	1.8660	0.527	0.077	5.94	196	83	0.000
No	2.7134	0.783	0.127				
Parents' Knowledge of Microbiology							
Yes	2.4080	0.801	0.119	2.10	196	83	0.039
No	2.0612	0.712	0.113				

Key: $\bar{x}$ = Mean Score; SD = Standard Deviation; SE = Standard Error; t- cal = Calculated Test Statistic Value; t- cri= Critical (Table) Test Statistic Value; df= Degree of Freedom; P= Probability.

biology during the study were transferred students, implying that, they did not choose Microbiology as a career. This might likely affect their attitude towards the programme and hence their performance. It has been shown that imposture of career on students by school authority affect students' performance and is one of the reasons students fail (Pitt, 1973).

Majority of the students were transferred from Faculty of Pharmaceutical Science. This may not be unconnected with the fact that most students who apply for Human Medicine are usually admitted to study Pharmacy. This is reflected in the responses of the students where 29.4% felt they were compelled to study Microbiology. These students may eventually go for their career choices regardless of how long it takes in addition to the other 40% who said they were only studying Microbiology as a gateway to Medicine. A previous study in Nigeria had reported similar findings (Onuigbo, 1980) and these results lend support to the belief of Pitt (1973) that school authority imposes career on students.

One tenth of the respondents applied to study Microbiology and two-third applied to study Medicine. Indeed as reflected in the responses of the students, general lack of awareness of Microbiology as a discipline might have made many students, who would otherwise have chosen Microbiology as a career, to choose Medicine. One fourth of the students in the study were not aware of Microbiology prior to admission while almost half of the respondents' parents were not. However, over half of the respondents' parents were aware of the discipline and would have influenced their children's choice of Microbiology as a discipline if they so wish, because it has been shown that students usually rely on their parents to help them make well-informed career goals (Bell, 2013). But most parents prefer their children to study professional programmes such as Medicine as revealed in the results of this study where most of the students applied to Medicine despite their parents' awareness. Favourably, since almost all of the respondents agreed that Microbiology should be converted into a professional programme, it implies the students have a positive attitude towards Microbiology.

The choice of Medicine over Microbiology might also be due to the high socio-economic image and the prestige accorded Medicine. Consequently a significant percentage of the respondents believed that microbiologists find it difficult to secure jobs after graduation. Hence a low socio-economic image is accorded Microbiology. This has also been noted by Senf et al. (2003) and Uyar et al. (2011). Medicine is a professional programme that is so popular and prestigious to the society that most parents want their children to be doctors. Prestige of occupation as pointed out by Oloyede (1995) is one of the factors that influence career choice among students. Thus, the country may be losing as a result, quite a number of good Microbiologists. This is a serious problem that calls for adequate career guidance, proper orientation and creation of awareness of the discipline amongst secondary school

students, parents and the public. The need to also educate secondary school students on other available programmes in sciences before they sit for the Joint Admission Matriculation Board exam is emphasized. This is because, for society, if the social system is to function smoothly and efficiently, sufficient numbers of people must be attached into the various occupations (Orubu, 1990).

There were more female respondents than male during the study. This result contrasts other findings by researchers in which they found more males in sciences than females. However, Orubu (1990) in his study contends that physical sex difference appears to be a less important factor in occupational choice.

The choice of Microbiology as a career had a positive influence on the students' performance as the correlation coefficient value was positive. This implies that, in ABU, the students who originally chose Microbiology as a career and were admitted to Microbiology performed better. Thus, it is inferred that career choice played an important role in shaping the attitude of these students towards the discipline, hence in the achievement attained. Although the correlation coefficient tended to be positive, it did not reach a statistically significant level, probably due to the small size of students that originally applied to study Microbiology. Hence, the retention of the hypothesis that career choice does not affect the performances of Microbiology students.

Similarly, the mean score of the non-transferred students was almost twice that of the transferred students, thus the non-transferred students performed far better than the transferred students. The p-value was 0.000; hence, the rejection of the hypothesis that there is no significant difference in terms of performance between transferred and non-transferred students. Therefore, students who were admitted to study Microbiology performed better than those who were not in the first instance. The reason for this might be that, some of the students admitted to study Microbiology and did not apply for it might probably have no choice than to accept their faith and like the course due to motivation from career talk and guidance hence performed better than those who were transferred to the department. The poor performance of the transferred students on the other hand, might be due to inadequate motivation on the parts of faculty members, parents and the public at large.

Factors like career guidance in schools, government policies, teaching methodologies and role of mass media in promoting career discipline have been shown to affect career choice (Waihenya, 2010; Odia and Ogiedu, 2013). Proper career guidance may influence students' choice of Microbiology as a career and could encourage them to perform better even if they initially applied for other programmes. Therefore increased awareness especially among faculty members of their role in providing career assistance is important, since teaching as well as providing career assistance students need to meet their expectations should be part of their responsibilities.

Furthermore, university students are in the process of confirming their career choices and implementing their career goals. Hence, program-specific advising is recommended in order to accommodate students' career assistance needs especially with transferred students and those who were not admitted to study their choice programmes. This is to encourage them, since they are already enrolled in the programme, not to just pass through the programme as most of them seem to be doing. According to the theory of Bandura (1986) as cited by Chuang et al. (2009), students' decision-making ability is viewed as a learning process and can be reinforced or refined through many ways, such as role models, faculty advising, or inspirational talk from leaders in the field.

Awareness of Microbiology as a discipline by parents of students also influenced students' performance during the study period with students whose parents were aware of the discipline performing significantly better. Thus, the hypotheses that there is no significant difference between the performances of students whose parents were aware of Microbiology as a discipline and those whose parents were not before admission was rejection. It can thus be concluded that parent's awareness of Microbiology as a discipline influences students' attitude and subsequently played a significant role in their performances. Studies have shown that parental influence enhances students' achievement because the higher the involvement of parents the better the students' attitude towards the course and the higher the academic success of such students (Olatoye and Ogunkola, 2008; Olatoye and Agbatogun, 2009; Oluwatelure and Oloruntegbe, 2010; Odia and Ogiedu, 2013). Therefore, parents should motivate students towards embracing their programme of choice. This, we believe would create a positive attitude and make them work harder, thus succeed in their chosen field.

The changing need of the society will continue to increase the number of occupational career choices. Undoubtedly most of the youths will find decision making and finding their places in a rapidly changing technological society difficult if not impossible as they are not sufficiently exposed to career opportunities by the time they leave school (Oloyede, 1995). The study of Microbiology will help students acquires appropriate skills, abilities and competencies that would enable them contribute to the development of the society and equip them to live effectively in our modern age of science. It is therefore important that parents should be educated and enlightened on not only Microbiology but other programmes existing in Sciences so that they would allow their children make choices rather than influencing their choices. The fact that most of the students who applied for Medicine and other programmes eventually found themselves in Microbiology Department shows that parents' career expectation for their children might not always materialise. This has been previously observed

(Pearson et al., 1982; Chu and Williams, 1996; Olatoye and Ogunkola, 2008; Oluwatelure and Oloruntegbe, 2010). More so, parents' brainwashing and insistence on the study of particular programme by their children often lead to students' failure mainly due to incapability.

Conclusion

The study showed that students who chose Microbiology as a career and the non- transferred students performed better than those who did not choose Microbiology as a career and those who were transferred students. Despite the lack of choice of Microbiology as a career, the students had a positive attitude to Microbiology; therefore, we are of the opinion that they will experience success if motivated. Thus, providing career assistance by faculty members and faculty/Departmental advisors will clearly have an important role to play in the career development of their students.

Over half of the students in the Department of Microbiology during the study were transferred students, majority transferred from the Faculty of Pharmaceutical Science and two-third of them applied to study Medicine. Therefore, studies should be conducted to investigate the cause of students' failure in these faculties that led to their transfer to the Department of Microbiology. The impact of students' academic choices on their career development and achievements should be considered by educators and the need for the university administration to try as much as possible to admit students based on their choice of career is emphasized.

Conflict of Interests

The authors have not declared any conflict of interests.

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