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COMPARISON OF THE PERFORMANCE OF UNDERGRADUATE PART-TIME AND FULL-TIME INTEGRATED SCIENCE STUDENTS IN THE UNIVERSITY OF JOS.

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ABSTRACT

The aim of this research study was to compare the academic performance of part-time and full-time integrated science students of the University of Jos. What prompted the study was the general concern of education and the public regarding the comparability of the product that emerged from the part-time and full-time degree programme run by Nigerian Universities. The study was guided by three research questions and four formulated null hypotheses tested at 0.05 level of significance. The population of the study comprised of Integrated Science students of part-time and full-time programme of the university of Jos. Purposive sampling technique was used to draw a sample of 16 and 25 undergraduate performance scores respectively, from results of part-time and full-time integrated science students who offered the courses in ITS 332, Geo 321, Bio 407, Phy 431, and ITS 411. The instrument used for data collection was a checklist tagged "Checklist for Obtaining Undergraduate Performance Score (COUPS). The data collected were analyzed using mean, standard deviation and t-test for independent sample. The findings showed that, for each of the five courses, there were no significant differences between the performance of part-time and full-time integrated science graduates except in ITS 332 and ITS 411 which indicated a little significant difference in favour of full-time students. For each of the five courses, there was no significant difference between the academic performance of male part-time and full-time integrated science students except in ITS 332, Geo 321, Bio 407 and ITS 411 which revealed a significant difference between the two groups in favour of the male full-time graduates. Similarly, for each of the five courses there was no significant difference between the academic performance of female part-time and full-time students except in ITS 332 and PHY 431 which indicated evidence of significant difference in favour of female full- time graduates. It was then recommended, among others that there is need for lecturers to have enough time with the part-time Integrated Science students to encourage them to improve on their academic performance. Also full-time students should be encouraged to use their time effectively as the results indicated that the difference between them and the part-time students is not much.

Keywords: Part-Time, Full-Time, Undergraduate, Programme, Performance, Integrated Science.

INTRODUCTION

Science Education is central and is very important to national growth and development of a nation. Integrated science is an approach to science teaching in which concepts, principles and methods of science are presented to express the fundamental unity of scientific thought. Integrated science is also seen as a unified course planned or drawn to show the unity, wholeness and inter-relationships of different disciplines that make up science. Duru (2013) defines integrated science as a core subject and stepping stone to all the sciences at the senior secondary school and at all science related occupations. Integrated science is also seen as an approach to the teaching of science in which concepts and principles are presented so as to express the fundamental unity of scientific thought and avoid premature or undue stress on the distinctions between the various scientific fields. "Integrated" when applied to science courses, means that the course is devised and presented in such a way that students gain concept of the fundamental unity of science, the

commonality of approach to problems of a scientific nature and helped to gain and understand the role and function of science in everyday life and the world in which man lives.

The quest for students to study integrated science is inevitable. There is need to satisfy individual quest for knowledge to cope with growing societal demand by school leavers and adult workers seeking for university level education in recent years. Adeyemi and Osunde (2005), state that there has been significant increase in the expansion of Nigerian university system such as part-time and full-time degree programme to accommodate individual actually seeking for higher education. The fact remains that space for all those who applied and passed the university entry matriculation examinations remains limited only a lucky few can be enrolled for university level studies (full-time studies). In chronicling the relevance of part-time and full-time programmes Akintayo (1990) conclude that due to under-utilization of resources, that is physical capacity, coupled with increasing students demand for access to higher education opportunities, universities must implement outreach programmes to address growing demand. Similarly Rumble and Harry (1982), Benand and Amundsen (1989), Callender and Feldman (2009), all agreed that open access to part-time and full-time programmes would improve students access to higher education.

Part-time study involves spreading a full-time postgraduate course over a longer period of time. It's usually tailored for those who want to continue working while studying, and usually involves committing an afternoon or an evening each week to attend classes or lectures. Part-time study becomes ever more popular as people try to juggle earning with learning whether you're picking up a professional qualification or progressing with your academic study, part-time study offers a viable alternative for those who cannot commit to full time post-graduate courses. Callender and Feldman (2009) define part-time student as a student who is working or having a business entity trying to add knowledge to him/her, or add up his/her qualification when the need for promotion arises. Part-time status is based on taking fewer credit courses in a semester than full-time students.

Full-time undergraduate students are defined as those taking nine credits or more per academic term. A full-time student is also seen as a student who gains entry into the university to run full time curriculum activities of the university for four years, semester by semester (Naira Land Forum, 2018). Performance is the extent to which a student has achieved his\her short or long-term educational benchmarks such as bachelor's degree, the researcher intends to compare the academic performance of part-time and full-time undergraduate students of the University of Jos.

The National University Commission (NUC,1981) see requirements for entry into universities for both full-time and part-time students as exactly the same. Both programmes are taught the same curriculum, use the same syllabus or course contents and administer examinations of the same standard. All programmes of studies are moderated, controlled and approves by senates of their respective operating universities. It is safe to assume therefore that there are standardized quality control measures in place that warrant the award of the same degree certificate to successful graduates who finish the programmes. In spite of efforts by educational institutions to make the running of their part-time and full-time programmes uniform there are very noticeable differences in the operation of the programmes. Both programmes differ in their time (season, duration, staff among others).

In the University of Jos, the full-time programmes run for at least 3 months in a semester and at least 6 months in one academic session for a period of 3 to 4 years depending on the students' mode of admission as either through direct entry (DE) or unified tertiary matriculation examination (UTME). On the other hand, the part-time degree programme takes about 2months 2weeks per contact for a period of 5years.It is obvious that full-time students spend a total of 18months (DE) or 24 months (UTME) receiving instructions before they graduate. Part-time students spend about 15months to graduate on the same programme, whereas all university lecturers teach on the full-time programme. Some of the part-time lecturers are not working with the university.

Students can graduate from the bachelor's degree programme on full-time or part-time depending on their choice. The degree programme lasts for six or at least eight semesters and

students who would like to concentrate exclusively on the degree programme can study in full-time model. Students, who are anchored in professional working life, have family obligation or want to finance their studies by working can select the part-time model (Idea Group INC, 2008). These aforementioned differences and few others are in the operation of the full-time and part-time Bachelor of Science education (B.Sc.Ed) in integrated science education. The comparability of the two programmes would appear doubtful to researchers.

STATEMENT OF THE PROBLEM

Integrated Science Education is central and is very important to national growth and development, because the quality of graduates produced by universities affects the direction, growth and development of a nation. Both the part-time and the full-time programmes have the same entry requirements and are regulated by the same body (NUC) and follow the same curriculum and syllabus. However, there are some noticeable differences in the operations of the full-time and part-time programme which make the comparability of their academic performance doubtful. Therefore, this research is to compare the performance of B. Sc. Ed. Part-time and full-time integrated Science Education students of the University of Jos to see whether they are the same or there are differences.

PURPOSE OF THE STUDY

The purpose of this study is to compare the performance of B.Sc. Ed. Part-time and full-time integrated science students of the University of Jos in some few selected courses. Specifically, the objectives of this study are to;

1. determine the mean scores of the performance of full-time Integrated science students in each of the courses under study.
2. determine the mean scores of the performance of part-time Integrated science students in each of the courses under study.
3. compare the performance of part-time and full-time integrated science students in the courses under study.

RESEARCH QUESTIONS

The following questions are raised to guide the study;

1. What are the mean scores of the performance of full-time Integrated Science students of the University of Jos in each of the courses under study?
2. What is the mean scores of the performance of part-time integrated Science students of the university of Jos in each of the courses under study?
3. To what extend do full-time and part-time Integrated Science students differ in performance in the courses under study?

HYPOTHESES

The following null hypotheses were formulated and tested at 0.05 levels of significance;

1. There is no significant difference between the performance mean scores of full-time and part-time B. Sc. Ed. integrated science students in each of the courses under study.
2. There is no significant difference between the performances mean scores of full-time and part-time B. Sc. Ed. Integrated science students in the courses under study.
3. There is no significant difference between the performance mean scores of full-time Male integrated science students and their part-time counterparts in each of the courses under study.
4. There is no significant difference between the performance mean scores of full-time B. Sc. Ed. Female integrated science students and their part-time counterparts in each of the courses under study.

METHOD AND PROCEDURE

The study adopted the casual comparative research design which is also known as ex-post-facto design. This is because causes are investigated after they have exerted their effects on the other variables. The research is designed to investigate the effects the independent variables have already had on the dependent variables. The independent variable is that factor that exerts influence on the dependent variable. The dependent variable in this study is the academic performance while the independent variable is the mode of study, either part – time or full – time. The population of the study consisted of integrated science education undergraduates of full – time and part – time students from the University of Jos. The population covered all integrated science education of the year 2017/2018 session 16 part-time 5 males and 11female students and 25 full time 11 male and 14 female students totally 41 students. The sample consisted of the16parts – time (5 males and 11 females) and 25 full – time (11 males and 14 females) Integrated Science undergraduate students of the University of Jos of the year 2017/2018 session. The study adopted the purposive sampling technique. This enabled the researchers to exercise judgment in relation to what would constitute a representative sample with respect to the research purpose. All the students of both part-time and full-time were automatically used for the study since they are within the range and also because of their manageable size. In order to get the information required for the successful execution of this research work, a check list was constructed to obtain the academic performance of the full-time and part-time integrated science undergraduate of the University of Jos. The checklist tagged as "checklist on undergraduate performance scores (UPS) was used to collect data. The research instrument was validated by three experts in the Faculty of Education. One of the experts was from Test and Measurement Evaluation Unit, Department of Educational Foundation and two from Integrated Science Unit, Department of Science and Technology Education from the University of Jos for face and content validation. The researchers contacted the officers keeping the academic records of part-time and full-time students with their consent; the researchers used the checklist on undergraduates' performance scores to obtain the needed data from the Examination Office.
The statistical methods the researchers used for data analysis involved mean .and t-test for difference between independent samples. The mean and standard deviation were used to answer the research questions while the t-test for difference between independent samples was used to test the hypotheses at 0.05 levels of significance.

RESULTS

The three research questions and four hypotheses were answered and tested at 0.05 level of significance as follows:

Research Question One What are the mean performance scores of full-time Integrated Science undergraduate students of the University of Jos in each of the courses under study?

Table1: Performance Mean Score of Full-Time Integrated Science Undergraduate Students.

Programme	Courses	N	Minimum	Maximum	Mean	Standard deviation
Full-time	Geo 321	25	45	71	56.20	7.52
Full-time	Bio 407	25	45	71	52.88	4.42
Full-time	PHY 431	25	45	62	48.72	5.04
Full-time	ITS 411	25	52	82	69.88	8.66

Table 1 shows the performance mean scores of full-time Integrated Science undergraduate students of the University of Jos for each of the Courses. The highest performance mean score (69.88) was recorded in ITS 411 with the standard deviation of 8.66 while the lowest (48.72) was in physics 431 with a standard deviation of 5.04.

Research Question Two What are the performance mean score of part-time integrated science undergraduate students of the University of Jos in each of the Courses under study?

Table2: Performance Mean Scores of Part-Time Integrated Science Undergraduate Students.

Programme	Courses	N	Minimum	Maximum	Mean	Standard deviation
Part-time	ITS 332	16	37	73	58.63	9.21
Part-time	Geo 321	16	38	95	58.69	14.65
Part-time	Bio 407	16	39	66	51.56	7.62
Part-time	ITP 441	16	48	71	57.63	6.30
Part-time	411	16	36	85	63.19	11.03

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Table 2 shows the performance mean scores of part-time Integrated Science undergraduate students of the University of Jos for each of the Courses under study. The highest performance mean score (63.19) was recorded in ITS 411 with a standard deviation of 11.03 while the lowest (51.56) was in Biology 407 with a standard deviation of 7.62.

Research Question Three: to what extent do full-time and part-time integrated science students differ in performance in the courses under study?

Table3: Difference Between the Performance Mean Scores of Full-time and Part-time Integrated Science students.

Study method	N	Minimum	Maximum	Mean	Standard deviation
Part-time	80	36	95	57.94	10.63
Full-time	125	45	82	58.19	10.29

Table 3 shows that there is a difference of point 2 or approximately point 3 between the performance mean scores of part-time and full-time Integrated Science undergraduate students in the five causes under study in favour of full-time undergraduate students.

Hypotheses. All the four hypotheses were tested using t-test statistics tested at 0.05 level of significance.

Hypothesis One: There is no significant difference between the performance mean score of Full-time and Part-time Integrated Science undergraduate students in each of the causes under study.

Table4: Difference between the performance mean score of Full-time and Part-time undergraduate students in each of the cause under study.

Courses	Group	N	Mean	S.D	df	t-cal	p.value	Decision
ITS 332	Full-time	25	63.28	8.78	39	4.84	2.02	Reject Ho
	Part-time	16	58.63	9.21				
GEO 321	Full-time	25	56.20	7.52	39	-2.26	2.021	Accept Ho
	Part-time	16	58.69	14.65				
BIO 407	Full-time	25	52.88	4.42	39	1.63	2.021	Accept Ho
	Part-time	16	51.56	7.62				
PHY 431	Full-time	25	48.72	5.04	39	1.63	2.021	Accept Ho
	Part-time	16	57.63	6.30				
ITS 411	Full-time	25	69.88	8.66	39	6.56	2.021	Reject Ho
	Part-time	16	63.19	11.03				

Table 4 shows the t-test summary of the results of the performance mean scores of Full-time and Part-time Integrated Science students in ITS 332, Geo 321, Bio 407, Phy 431 and ITS 411. In all the five years, the result indicates no significant difference between the full-time and part-time integrated science students except in ITS 332 and ITS 411 which showed significant difference in favour of Full-time integrated science graduate students. ITS 332 result yielded t (39)=4.84, p<t

calculated, and ITS 411 result yielded to t(39)=6.56, P<t calculated, since their P.value is less than their t- calculated, the null hypothesis was rejected. For the other courses, Geo 321 Bio 407 and Phy 431, the null hypotheses were accepted since their P.Values were greater than their t calculated.

Hypothesis Two: There is no significant difference between mean score of the performance of Full-time and Part-time integrated science graduate students in the causes under study.

Table 5: Difference the Performance Mean Scores of Full-time and Part-Time Integrated Science students in the courses under Study.

Group	N	Mean	S.D	d.f	t-cal	P.value	Decision
Part-time	80	57.94	10.63	203	-0.54	1.960	Accept
Full-time	125	58.19	10.29				

Table 5 reveals the t-test summary of the results of the difference between the mean scores of the performance of Full-time and Part-time Integrated Science students in all the courses under study. The result yielded t (203) =- 0.54, P>t calculated since the p-Value of 1.960 is greater than t- calculated, the null hypothesis was accepted. It was concluded that the difference between the performance mean scores of Full-time and Part-time Integrated Science students for the courses under study in sthe University of Jos is insignificant.

Hypothesis Three: There is no significant difference between the performance mean scores of Full-time male integrated science graduate students and their Part-time counter parts in each of the courses under study.

Table 6: Difference Between the Performance Mean Scores of Full-time male Integrated Science students and their Part-time counter parts in each of the year under study.

Causes	Group	N	Mean	S.D	d.f	t-cal	p.value	Decision
ITS 332	full-time	11	46.73	9.25	14	2.77	2.145	reject HO
	part-time	5	60.60	6.89				
Geo 321	full-time	11	55.36	7.21	14	3.42	2.145	reject HO
	part-time	5	50.20	8.08				
Bio 407	full-time	11	54.45	6.88	14	3.50	2.145	reject HO
	part-time	5	49.20	8.13				
Phy 431	full-time	11	49.27	5.47	14	-7.42	2.145	reject HO
	part-time	5	58.40	5.08				
Its 411	full-time	11	69.18	7.71	14	6.99	2.145	rejectHO
	part-time	5	59.40	6.28				

In all the five courses , the result indicate that the difference between the performance of full-time and Part-time male integrated science students is significant in favour of the Full-time Integrated Science male students. The null hypothesis in ITS 332, Geo 321, Bio 407 and ITS 411 were rejected since their P.values were less than their t-calculated except in Phy431 which showed that there is no significant difference between the performance of Full-time and Part-time male integrated science graduate students. Phy 431 result yielded t(14)=-7.42 P>t calculated since the P.values was greater than t calculated, the null hypothesis was accepted.

Hypothesis Four: There is no significant difference between the mean score of the performance of Full-time female integrated science graduate student and their Part-time counterpart in each of the year under study

Table 7: Difference Between the Performance Mean Scores of Full-time Female Integrated Science students and their Part-time Counterparts in each of Courses Under Study

Causes	Group	N	Mean	S.D	d.f	t-cal	p.value	Decision
Its 332	Full-time	14	62.14	8.07	23	3.61	2.069	Reject HO
	Part-time	11	59.73	9.96				
Geo 321	Full-time	14	56.50	7.96	23	-4.35	2.069	Accept HO
	Part-time	11	62.55	15.32				
Bio 407	Full-time	14	51.64	4.97	23	-1.00	2.069	Accept HO
	Part-time	11	52.64	7.13				
Phy 431	Full-time	14	51.64	5.56	23	4.72	2.069	Reject HO
	Part-time	11	58.55	7.14				
Its 411	Full-time	14	71.14	8.85	23	-6.77	2.069	Accept HO
	Part-time	11	64.91	12.25				

In all the five courses, the results indicates no significant difference between the performance of Full-time and Part-time female integrated science students except in ITS 332 and Phy 431, which is showed significant difference in favour of the Full-time Integrated Science female students. ITS 332 result yielded t (23)=3.61, P<t calculated, since their P.values is less than their t calculated. The null hypothesis was rejected. For the other courses, Geo 321, Bio 407 and ITS 4.11, the null hypothesis were accepted since their p.values were greater than their t- calculated.

DISCUSSION OF THE FINDINGS

In this study three research questions were raised and answered. Four hypothesis were formulated and tested at 0.05 level of significance. The findings showed that for the courses ITS 332, Geo 321, Bio 407, Phy 431, and ITS 411, the Full-time integrated science graduates of the University of Jos obtained their highest performance mean score (69.88) with a standard deviation of 8.66 in ITS 411 and their lowest performance mean score (48.72) with the standard deviation of 5.04 in Phy 431. Similarly, the part-time integrated science students recorded their highest performance mean score (63.19) with a standard deviation of 11.03 in ITS 411 and their lowest performance mean score (51.56) with a standard deviation of 7.62 in Bio 407. The difference in performance between Part-time and Full-time Integrated Science students may be due to work experiences which placed the former over the latter. This is in line with Ibrahim, freeman and Shelley (2011) who opined that Part-time students could concurrently related their work experiences to their academic learning.

Another finding in this study is that for the 80 Part-time Integrated Science students that took part in the study their mean score for the five causes under study was computed to be 57.94 with a standard deviation of 10.63. in contrast the mean score for 125 Full-time Integrated Science students that participated in the study was computed to be 58.19 with a standard deviation of 10.29. There was difference of 0.25 between the performance mean scores of both groups in favour of the Full-time students who had enough time for their studies unlike their paart-time counterparts who had no sufficient time as a result of their official work. Time is provided for them to go for teaching practice and writing of research projects, which might have enriched and contributed to their improving performance mean scores. It is expected that the performance mean scores of the full-time students should be higher than the result obtained but it's unfortunate that the differences is not much, this shows that the full-time students are not utilizing their time effectively for their studies. The t-test statistical analysis for each of the five courses under study revealed that there was no significant difference between the performance of Part-time and full-time Integrated Science students except in ITS 332 and ITS 411 which showed significant difference in favour of full-time students. This might have explained with the factors that are generally considered to positively affect the academic performance of full-time students. This factor includes; proper time management, sufficient study skills, adequate financial resource and commitment to

their study. It is believed that full-time students do not combine their studies with work; therefore, they have sufficient time for lectures as well as for independent studies. They therefore have the opportunity to develop sufficient and good study skills and habits. This is unlike their counterpart who study on part-time basis because they are workers; consequently, no enough time studying (Darolia, 2013).

In similar manner the t-test statistical analysis for each of the five courses showed that the difference between the performance of full-time and part-time male Integrated Science students is significant in favour of the full-time integrated science male graduate except in Phy 431 which showed that their difference is insignificant. In the same vein, for each of the five years the t-test statistical analysis indicated that there was no significant difference between the performance of part-time and full-time female Integrated Science students except in ITS332 and Phy 431 which showed significant difference in favour of female Integrated Science students.

The t-test statistical analysis further revealed, for all the five courses under study put together, that there was a little significant difference between the performance mean scores of part-time and full-time Integrated Science students in favour of full-time students. This indicates that generally, the full-time Integrated Science students performed a little higher than their part-time counterpart because the result of the two groups fall within the average limit. This finding is in line with that of (Darolia 2013) who detected a little significant difference between the academic performance of full-time and part-time students Integrated science. It is expected that the performance mean scores of full-time students should have been higher than 0.25 obtained. The difference of the two groups fall within the expected average level because of the sufficient time they have for their studies but the results did not prove that. This means that the full-time students are not utilizing their available time effectively.

RECOMMENDATIONS

In view of the findings, the following recommendations were made.

1. There is need for the lecturers to have more time with the part-time and full-time Integrated Science students to encourage them to improve on their academic performance. Better academic performance is expected from the part-time student as they have the opportunity of connecting their experience as workers with what they learned on B. Sc.Ed Integrated Science programme.
2. Head of Department could adapt the system of going around check on lecturers that fail to come for lectures. Doing so will make lecture to be up and doing and academic performance of the part-time student may improve.
3. Male and female part-time integrated science student should be checked and counseled to improve on their academic performance.
4. There is need for the university especially Science and Technology Education Department to keep watch over the affairs of full-time students so that they can utilize their time effectively in their studies in order to perform better.
5. Finally, on a general note the study recommends staff capacity building workshop by the university or faculty of education both full-time and part-time integrated science student on the benefits of hard work and improved.

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