Full Length Research Paper

Assessment of University Students learning of Basic Concepts in Educational Research Methods

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Abstract

Determining Basic Concept in Educational Research Methods (BCERM) and most frequent topic associated with each concept; difference on the concepts undergraduate and postgraduate students enjoy learning or find difficult to learn were among the objectives of the study. Descriptive research design was used. The population of the study consisted of 135(80 under- graduate and 55 Post –graduate) students from Faculty of Technology Education (FTE) Abubakar Tafawa Balewa University Bauchi. Proportional sampling technique was used to select 103(61 under-graduate and 42 post- graduate) students. Learning of Basic Concepts in Educational Research Methods (BCERMQ) was developed, validated and used for data collection. A coefficient of 0.82 was established for the stability of the items. The data obtained were analyzed using percentages, bar- charts and chi- Square test. Hypotheses were tested at α = 0.05 level of significance. Results from the study showed that there is no statistically significant difference (Ψ^2 = 5.166, df = 4, ρ = .271) on the concepts undergraduate and postgraduate students enjoy learning; undergraduate and post graduate students differ significantly (Ψ^2 = 10.470, df = 4, ρ = .033) on the concept they find difficult to learn. Lectures to be based on using real –life research situations to help students see the connection between what is taught in theory and practical application; Jigsaw (Co-operative) learning method to be use in lecture delivery on concepts identified as difficult to understand by students were among the recommendations made from the study.

Key words: Assessment, University Students, Basic concepts, and Educational Research Methods.

Introduction

Assessment as used in the context of this study refers to the direction for action on the identified Basic Concepts in Educational Research Methods (BCERM) under graduate and post graduate students from Faculty of Technology Education (FTE) Abubakar Tafawa Balewa University, Bauchi enjoy or find difficult to learn.

Research refers to an objective effort to discover new ideas, facts, knowledge or information; an orderly investigation of a subject matter for the purpose of adding knowledge (Nwankwo and Emanual, 2015; Postlethwaile, 2005 ;). Learning research methods are one of the most important and challenging tasks at the university (Murtonen, 2005). Students at undergraduate and post graduate levels are required to undertake a course in research method, students from faculty of education not an exception, have to register and pass not only the course but put in what they learn from the course into practice.

Educational research methods refers to, a variety of methods, in which individual student evaluate different aspects of education; systematic, discipline and inquiry applied to educational problems and questions (Mcmillan, 2015). Finding solutions to educational problems such as unsatisfactory state of affairs in education like students truancy, teaching methods, innovations and diagnosis of student's achievement are some of the concerns of research methods in education.

A solid understanding of educational research methods is a corner stone of a successful student (Lammers, 1993). Students at undergraduate level do not have transferable skills, when it comes to research methods (Garner, (2012); McInnes, 2012). Having students at any level to conduct research is an integral element of supervisor supporting students and ensuring that they progress with knowledge of how to conduct research, not just how to pass a particular specifications method's paper(Jarret, 2010). Yet, reports from seminar presentations at undergraduate and post graduate levels on project and thesis were discouraging. Murtenon (2005) observed that there is need for better approaches to teaching and helping the students learn scientific

thinking and research methods in a more effective and deeper way.

To improve students' performance in research methods and reduce the problem students encountered at seminar levels there is need to investigate on BCERM and topics related to each concept students find difficult to understand. It is in line with this, that the study investigated five BCERM that include research in behavioral science, variables types, reliability and validity, hypothesis testing and population and sampling, and topic associated with each concept under- Graduate and Post- Graduate students enjoy or find difficult to learn. Specifically the study determine in percentages-:

i. The number each of under- graduate and post –graduate students having educational research methods text book.
ii. The number each of undergraduate and post-graduate students who uses Web Assisted learning on educational research methods.
iii. Level of satisfaction or non – satisfaction with mode of lectures delivery by the course lecturer in educational research methods between under- graduate and post- graduate students.
iv. BCERM under graduate students enjoy learning and topic associated with the concept.
v. BCERM under graduate students find difficult to learn and topic associated with the concept.
vi. BCERM post graduate students enjoy learning and topic associated with the concept.
vii. BCERM postgraduate students find difficult to learn and topic associated with the concept.
viii. Difference on the concepts undergraduate and postgraduate students enjoy learning.
ix. Difference on the concepts undergraduate and postgraduate students find difficult to learn.

Hypotheses

The following hypotheses were tested.

H_o1: There is no significance difference on the concepts undergraduate and postgraduate students enjoy learning.

H_o2: There is no significance difference on the concepts undergraduate and postgraduate students find difficult to learn.

The outcome from the study could assist lecturers (research methods) in planning lectures of such BCERM identified to be difficult by students. It would also give direction on assessment drills areas for undergraduate and post graduate students. It could also assist researches to carry out similar research study.

Methodology

Descriptive research design was adopted for the study. The population of the study consisted of 135 (80 undergraduate and 55 Postgraduate) students from Faculty of Technology Education (FTE) Abubakar Tafawa Balewa University Bauchi. The FTE is made of three departments, Science Education (Scie.Edu), Vocational & Technology Education (VTE), and Education Foundation (EF) departments. Of these departments, Education Foundation being servicing department at undergraduate level had only post graduate students. The population of the under graduate students is made of both male and female final year students .While the population of the postgraduate students consisted of both male and female students who had completed their course work. Proportional sampling technique using hat and drawn method was used to select 103 (61 undergraduate and 42 post graduate) students.

Table 1: The Number of Students Selected from each department from FTE

| Department	Scie.Edu	VTE	EF	Total
No of Under-Graduate	26	35	-	61
No of Post- Graduate	14	16	12	42
Total No of Students	40	51	12	103

Learning of Basic Concepts in Educational Research Methods (BCERMQ) was developed, validated and used for data collection. The questionnaire has two sections A, B and C. Section A focused on students bio data, section B consisted of four items that comprises of yes or no responds while section C consisted of 9 items (Assessing students on 5 BCERM) based on Likert scale type on which students are required to tick in the most appropriate response " Enjoy learning " or "Find difficult to learn". Face validity of the questionnaire was obtained from senior colleagues in measurement and evaluation. Twenty (10 undergraduate and 10

Postgraduate) students were selected at random for pilot testing the stability of the items on the questionnaire. A coefficient of 0.82 was established. As a result of face validity of the items by experts, item 3 on section B and item 10 on section C were dropped while the remaining items on section B were structured in terms of a, b, and c. Graduate Assistants 2 from each of the departments from the FTE assisted in the administration and collection of the questionnaires. The data was analyzed using percentages and bar – charts while chi - square statistics was used for the testing of

the hypotheses using Statistics Product and Service Solutions (SPSS).

Presentation of Results

Results obtained from the data were tabulated and hypotheses tested were presented in this section. The results were computed based on 98 (57 from undergraduate and 41 from postgraduate) retrieved administered questionnaires. The scores for each group were analyzed using SPSS.

|	Yes	No
■ Under -Graduate	33%	67%
■ Post- Graqduate	80%	20%
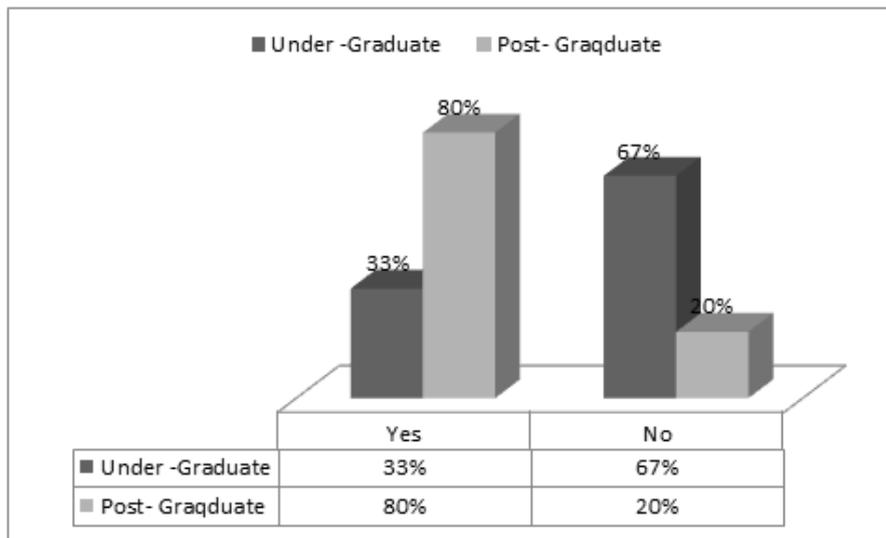
Fig. 1: Percentages of students with textbook on educational research methods

Figure 1 above, shows the percentages of undergraduate and postgraduate students having textbook on the course educational research methods.

	Yes	No
■ Under -Graduate	86%	14%
■ Post- Graqduate	76%	24%
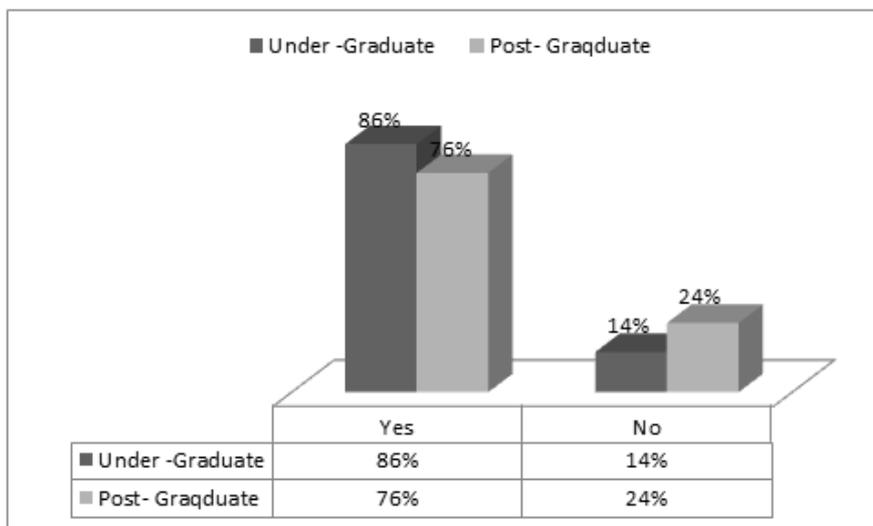
Fig. 2: Percentages of students that use web assisted learning in educational research methods

Percentage of undergraduate and postgraduate students that engaged on web assisted learning was shown on Figure 2 above.
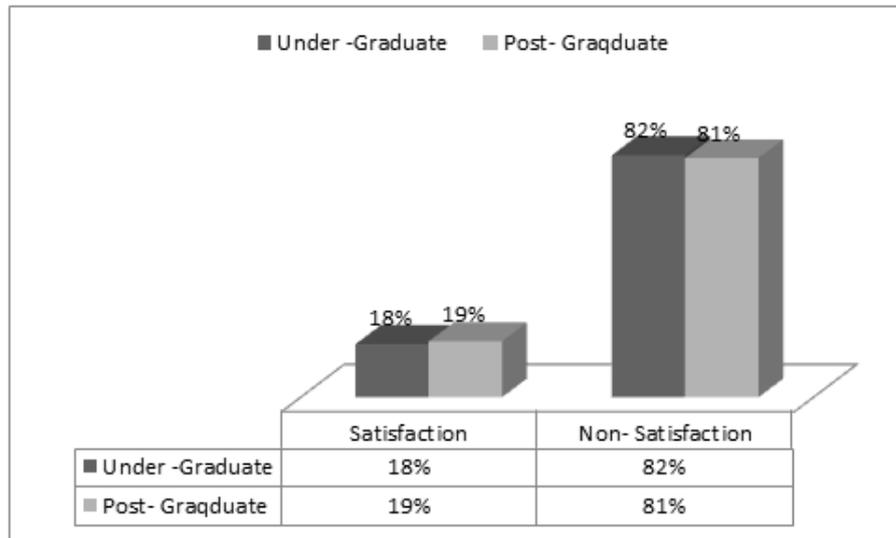
Fig. 3: Level of satisfaction or non – satisfaction with lectures on educational research methods

The level of (undergraduate and postgraduate) student's satisfaction or non–satisfaction with mode of lectures delivered by the course lecturer on educational research methods was shown on figure 3 above.

Table 2a: Percentages of basic concepts in educational research methods undergraduate students enjoy or find difficult to learn

Concept	Research in Behavioral Science	Types of Variables	Reliability & Validity	Hypothesis Testing	Population & Sampling
Enjoy learning	62.3 %	64.9 %	52.6 %	58.8 %	77.2 %
Difficult to learn	37.7 %	35.1 %	47.7 %	41.2 %	22.8%
Total	100%	100%	100%	100%	100%

Table 2a above, shows in percentages the basic concepts in educational research methods under graduate students enjoy learning of find difficult to learn.

Table 2b: Summary of topics associated with each concept under graduate students enjoys or find difficult to learn

Concept	Break down based on Topic	Enjoy learning	Difficult to learn
	Experimental.	70.2 %	29.8%
Research in Behavioral Science	Non-Experimental.	54.4 %	45.6 %
	Qualitative.	56.1%	43.9 %
Types of Variables	Quantitative.	73.7 %	26.3 %
	Assessing reliability.	52.6 %	47.4 %
Reliability and Validity	Assessing validity.	52.6 %	47.4 %
	Accepting and rejecting.	71.9 %	28.1 %
Hypothesis Testing	One tail and Two tail.	45.6 %	54.4 %
Population and Sampling	a .Probability Sampling	75.2 %	24.8 %
	b.Non- Probability	35 .5%	64.5%

Tables 2b is the summary of topics associated with each concept under graduate students enjoy learning or find difficult to learn.

Table 3a: Percentages of basic concepts in educational research methods post- graduate students enjoy or find difficult to learn

Concept	Research in Behavioral Science	Types of Variables	Reliability and Validity	Hypothesis Testing	Population and Sampling
Enjoy learning	57.3 %	64.6%	70.7 %	58.5%	58.5%
Difficult to learn	42.7 %	35.4%	29.3 %	41.5%	41.5%
Total	100%	100%	100%	100%	100%

The result on Table 3a above shows the basic concepts in research methods computed in percentages post graduate students enjoy or find difficult to learn.

Table 3b: Summary of topics associated with each concept post graduate students enjoys or find difficult to learn

Concept	Break down based on Topic	Enjoy learning	Difficult to learn
	Experimental.	75.6%	24.4%
Research in Behavioral Science	b. Non-Experimental.	39.0%	61.0 %
Types of Variables	Qualitative.	53.7%	46.3 %
	Quantitative.	75.6%	24.4 %
Reliability and Validity	Assessing reliability.	63.4%	36.6%
	Assessing validity.	78.1%	21.9%
Hypothesis Testing	Accepting/rejecting.	73.2%	26.8 %
	One tail and Two tail.	43.9%	56.1 %
Population and Sampling	a .Probability Sampling	58.5%	41.5 %
	b.Non- Probability.	60.2	39.8 %

Table 3b above is the summary topics associated with each concept in educational research methods post graduate students enjoy or find difficult to learn.

Table 4: Chi -square test computed on testing H_o1

	Value	df	Asym.sig(2-sided)
Pearson chi-square	5.166[a]	4	.271
Likelihood Ratio	5.182	4	.269
Linear –by –Linear Association	.525	1	.469
N of valid cases	627		

a.0 cells (.0 %) have expected count less than 5. The minimum expected count is 58.53

Table 4, is the result of H_o1 tested using Chi- square Test. From the result, Ψ^2 = 5.166, df = 4, ρ = .271, was obtained at α = 0.005 level of significance.

Table 5: Chi-square test computed on testing H_o2

	Value	df	Asym.sig(2-sided)
Pearson chi-square	10.470[a]	4	.033
Likelihood Ratio	10.598	4	.031
Linear –by –Linear Association	1.164	1	.281
N of valid cases	376		

a.0 cells (.0 %) have expected count less than 5. The minimum expected count is 31.98

Result on Table 5, shows the chi- square test computed on testing H_o2. From the result, Ψ^2 = 10.470, df = 4, ρ = .033, was obtained at α = 0.005 level of significance.

Findings

- 67 % of the undergraduate and 20 % of the post graduate students relied only on the lecture notes given by the lecturer.
- Undergraduate students relied more on web assisted learning (86 %) than on the use of textbook (33 %). While post graduate students combined both (76 % on the use of web assisted learning and 80% on the use of textbook).
- The percentage of dissatisfaction with the mode of lectures delivered by course lecturer in educational research methods for both undergraduate and post graduate students stood at 82 % and 81 % respectively.
- Undergraduate students enjoy learning the concept of population and sampling and topic associated with it is probability sampling.
- Undergraduate students find learning the concept of reliability and validity as difficult (47.7 %).
- 70.7 % of the postgraduate students enjoy learning of the concept of reliability and validity and the topic associated with this concept is assessing validity (78.1 %).
- Postgraduate students find learning of the concept research in behavioral science as difficult (42.7 %).
- There is no statistically significant difference on the concepts under graduate and postgraduate students enjoy learning.
- Undergraduate and post graduate students differ on the concepts they find difficult to learn.

Discussions

The results from study assessed the under graduate and postgraduate university students learning of basic concepts in educational research methods. In discussion the results from the study certain limitations on gender difference; difference between Scien. Educ. and VTE

students; on learning basic concepts in research methods must be acknowledged.

To achieve objective i from the study, result from Figure 1 was used. From the result, the percentage of post- graduate students having textbook on educational research methods is 80 % which is higher than the percentage of 33 % of the under- graduate students having the textbook. Finding from this, shows that 67 % of the undergraduate and 20 % of the post graduate students relied only on the lecture notes given by the lecturer. Murtonen (2005) caution students against relaying on lecture notes, and abstract examples given to them by lecturers as they were not enough to create a deep understanding of concrete research procedures.

Result from Figure 2, revealed that 86 % and 76 % of undergraduate and postgraduate students respectively use web assisted learning in educational research methods. Finding from this when compared with finding on Figure 1, shows that undergraduate students relied more on web assisted learning (86 %) than on the use of textbook (33 %). While post graduate students combined both (76 % on the use of web assisted learning and 80% on the use of textbook). Indeed, this could attracts the students attention, facilitating students learning process, and helps to improve students' learning vocabulary which is in agreement with Yunus, Nordin, Salehi, Sun and Embi (2013) and Tareef , (2014) finding.

To achieve objective iii from the study, result from Figure 3 was used. From the result, the percentages of dissatisfaction with the mode of lectures delivered by course lecturer in educational research methods for both undergraduate and postgraduate students stood at 82 % and 81 % respectively. The less than 20 % satisfaction as revealed from the Figure 3 signified a problem on the mode of lectures given to students. The finding is in agreement with previous finding by Murtenon (2005) that methods courses at the university are just something student have to swallow , there is no concern about understanding. The finding may probably justify the findings on Figure 1 and Figure 2 for the post graduate students to combining both textbook and web assisted learning.

Result from Table 2a, revealed that under graduate students enjoy learning of the concept of population and sampling (77.2 %) and probability sampling as the topic associated with it (75.2 %) as revealed from Table 2b. finding from this, revealed that undergraduate students enjoy learning the concept of population and sampling and probability sampling as the topic associated with it .

To achieve objective v from the study, result from table 2a was used. From the result, it shows that the undergraduate students find the learning concept of reliability and validity as difficult (47.7 %) and the topic non- probability sampling associated with the concept of population and sampling as difficult (64.5%) as revealed from Table 2b. Finding from this revealed that the undergraduate students find learning the concept of reliability and validity as difficult but the topic non-probability sampling associated with the concept of population and sampling as more difficult than topics associated the concept of reliability and validity.

Result from Table 3a, showed that 70.7 % of the post-graduate students enjoy learning of the concept of reliability and validity and the topic associated with that concept is assessing validity (78.1 %).

Result from Table 3a revealed that postgraduate students find learning of the concept research in behavioral science as difficult (42.7 %) and non-experimental research (61 %) as the topics associated with that concept(Table 3b) . Finding from this revealed that postgraduate students enjoy learning of the concept reliability and validity and topic associated with it is assessing validity while the they find learning the concept research in behavioral science as difficult and topic associated with it is non- Experimental (quantitative) research. The finding is in agreement with Murtonen 2005, who reports that quantitative research methods appeared to be difficult for students to learn.

To determine the difference between undergraduate and postgraduate students on the concepts they enjoy learning. The H_o1 was tested at α = 0.05 level of significance. Although they results on the concepts students enjoy learning was tabulated in percentages on Table 2a and Table 3a. However, these differences in percentages as shown on Table 2a and Table 3a were not statistically significant at Ψ^2 = 5.166, df = 4, ρ = .271, as shown on Table 4. Finding from this, showed that there is no statistically significant difference on the concepts undergraduate and post graduate students enjoy learning. Hence the Ho1 was not rejected at ρ>0.05, level of significance.

The result from Table5, shows the H_o2 tested at α = 0.05 level of significance on determining the difference on the concept undergraduate and postgraduate students find difficult to learn. Result on Tables 2a and 3a shows the difference in percentages on the concepts (undergraduate and post- graduate) students find difficult to learn. However, these differences were statistically significant at Ψ^2 = 10.470, df = 4, ρ = .033, hence the Ho2 was rejected at ρ>0.05, level of significance. The finding revealed that undergraduate and postgraduate students differ on the concepts they find difficult to learn.

Conclusion

The study assessed university students from Faculty of Technology Education, Abubakar Tafawa Balewa University, Bauchi learning of basic concepts in educational research methods. To determine the extent to which the students enjoy or find difficult to learn basic concepts and topic associated with each in educational research methods, five basic concepts were examined. Although the study is limited in scope, further study could be carried out to examine gender differences on learning basic concepts in educational research methods among undergraduate and post graduate students.

Recommendations

The following recommendations were made

- Use of textbook and web assisted learning to be encouraged among both undergraduate and postgraduate students.
- Course lecturers at undergraduate and postgraduate levels to change the pattern of their lectures delivery.
- Lectures to be based on using real –life research situations to help students see the

connection between what is taught in theory and practical application.

- Jigsaw (Co-operative) learning method to be use in lecture delivery on concepts identified as difficult to understand by students.

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