



# Developing a Checklist for Assessing the Appropriateness of Education Degree Research Projects in South–Eastern Universities, Nigeria

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## Abstract

Due to lack of valid and reliable instruments for assessing the appropriateness of research projects in this era of global education, the researchers developed and validated an instrument for assessing the appropriateness of education degree research projects in Universities in South-East Geo-Political Zone of Nigeria. The study is an instrumentation research design. The population of the study consists of 3586 tutorial staff and the sample comprised of 1000 tutorial staff that were sampled using disproportionate by cluster random sampling technique. The instrument that was used for data collection for this study is a checklist titled “Appropriateness of Education Degree Research Projects’ Checklist (AEDRPC)” with 80 items in 7 components clusters. The instrument was initially face validated by 7 experts in the area of Measurement and Evaluation. Content validity of faculty formats from various universities that offer education degree was used to answer the research question one, research question two was answered using Kendall Coefficient of Concordance ( $W$ ) Statistics, while research question three was answered using Phi Coefficient ( $\phi$ ) Statistics. It was revealed in this study that the 80 items of the instrument AEDRPC, were acceptable and as such seen to be suitable for use in the study. The results of the study also showed that AEDRPC is reliable, and therefore and can be used to measure the appropriateness of education degree research projects in Universities in South-East Geo-Political Zone of Nigeria. Based on the findings, it was recommended among others that evaluators and researchers in universities should adopt this instrument in assessing the appropriateness of research projects in their Universities.

**Keywords:** Development, Validation, Instrument, Education Degree, Research Projects.

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## INTRODUCTION

The roles of educational research in knowledge contribution and societal development cannot be overemphasized. Educational research is a systematic and a set of coordinated activities which is used to expose the issues concerned with teaching and learning, which invariably helps to improve its immediate practice for national development. On another definition of educational research, Amaechi, Amaechi and Emerole (2015), defines it as a systematically controlled investigation of an event, place, individual or object associated with education and its practices with the aim of understanding or verifying knowledge that will help to solve academic and societal problems. Also, the definition implies that every research study has a goal or purpose. This implies that educational research plays a crucial role towards societal development. This could be why the Federal Republic of Nigeria (FRN, 2014) stipulates that tertiary institution research shall be relevant to the nation's development goals. Students in tertiary institutions are to undertake projects and action research, while the institutions disseminate research results to both government and industries for proper utilization. In pursuance of this goal, it has been enshrined in the curriculum for all levels of the tertiary education that undertaking a project work and successful presentation of the research project report would be pre-requisite for graduating in any degree programme of universities.

Project research is seen as a student's Master Piece. It gives the student the opportunity of looking into various problems in his or her area of specialization and following scientific method to systematically proffer solution to the problem (Ifedili & Omiunu, 2012). At the final year of university programme, education students conduct researches and report them in writing. For B.Sc.Ed./B.A.Ed. students the research is called projects, M.Ed. students write theses while the Ph.D.s are called dissertations. In some universities, the masters project is called dissertation while that of Ph.D. is called thesis. It is expected that the researcher follow their faculty format in conducting a research. No matter the university involved, in as much as it is faculty of education, they have similar format for writing their research work.

Educational research writing in faculties of education in universities or colleges of education consists of five chapters, beginning from introduction to the summary. In chapter is titled; 'Introduction', it is where the students lay foundation on which the study will be build highlighting key issues that surround the topic of investigation in line with the objectives that will lead the study through. Chapter two reviews literature that have bearing to the key concepts of the study. In this chapter two, the researcher conceptualizes the key issues of the topic with theoretical foundation and empirical evidence. Chapter three is on the method that allows the researcher to systematically arrive at a solution to the identified problem. The researcher will lay emphasis on the design of the study, instrumentation and how to conduct such study (Amaechi, 2016). In chapter four, the analysis of data collected for the study are done either in tabular or graphical forms. In the same chapter, statistical analyses are used to represent the ideas the researcher intends to expose for easy understanding by answering the research questions and testing the hypotheses. In the chapter five, the researcher summarizes the study and discusses the findings of the study in line with recommendations and other relevant issues.

Amaechi, Amaechi and Emerole (2015), found out that post graduate students perceived that they find it difficult to identify the best method for analysis, best statistics to answer the research questions and suitable statistics to test the research hypotheses. However, Ogomaka (2004) revealed that the extent to which the project reports, thesis or dissertations are appropriately, conventionally and meaningfully written is certainly far below the expectation. Ibe (2008) findings reported that majority of Nigerian students and researchers make their efforts less rewarding and of less consequence because of the way and manner;

research topics are formulated and the designs of such studies chosen and results of data analysis are interpreted. Nwana (2007), advised that data which are not related to the study should not be collected no matter how interesting or how easily available they may be. This spelt out the relevance of instrument for data collection of every research. Isangedighi and Ogomaka (1992), then believed that without data collection instrument, there exists no research. Looking at the issues above, development of appropriate (validated and reliable) instrument that will be researchers in conducting a good and reliable research project is important in this contemporary society. Two major properties are considered essential for developing an instrument, they are; validity and reliability. For an instrument to achieve the objectives to which it was developed, validity of such instrument is crucial. Validity of an instrument refers to the capability of an instrument to measure whatever it is designed to measure (Nwana, 2007). On the other hand, reliability of an instrument refers to the capacity and consistency of a measuring instrument to give the same information each time it is used (Egwim & Amaechi, 2015). This implies that if an instrument persistently and consistently measure what it set out to measure anytime it is used, that instrument can be relied upon (Amaechi, Onah & Nosike, 2016).

Empirically, Balogun and Mustapha (2014), concluded that test items that have high factor loading and satisfy other psychometric properties are important for selection in any instrument development and validation study. Similarly, Onye and Amaechi (2016) found out that their scale had a high reliability index of 0.84. Awofala (2011) found out that their instrument had good reliability with Cronbach alpha coefficient of 0.70. It is therefore expected of any developed instrument to be valid and reliable.

The issue of appropriateness or otherwise of the manner of reporting educational research in some universities is a thing of concern in the academic environment. A glance through some undergraduate and postgraduate banded projects/thesis may suggest that some areas in some chapters may not have been appropriately reported. One could see some topics that are experimental in nature having the design of survey; others misunderstand correlational designs to ex-post facto design, while others shy away from conducting experimental studies due to its tedious procedures. In most cases, researchers always use questionnaire in their research while the appropriate instrument could not have been questionnaire. They have bastardized the use of questionnaire because it is easy to use. A close look at some research works in university libraries could reveal that most research projects do not have evidence of instrument validation; even some have errors in their statistical analyses while others may have had a poor discussion of their findings. If these practices are allowed to persist, the aim of research writing in the universities may be defeated. It is on this foundation that the researchers deemed it fit to develop a checklist for assessing the appropriateness of education degree research projects in Universities in South-East Geo-Political Zone of Nigeria. This study posed as a question: what is the content validity and consistency of the developed items of “Appropriateness of Education Degree Research Projects Checklist (AEDRPC)” in South East State-owned Universities in Nigeria? The answer to the above question becomes the thrust of this study.

The central purpose of this study is to develop an instrument (checklist) for assessing the appropriateness of education degree research projects in Universities in South-East Geo-Political Zone of Nigeria. Specifically, the study sought to:

- Ascertain the content validity of AEDRPC,
- Examine the reliability of AEDRPC using Kendell Coefficient of Concordance (W), and
- Determine the reliability of AEDRPC using Phi Coefficient (0).

## Research Questions

The following research questions were posed to guide the study:

- What is the content validity of AEDRPC?
- What is the reliability of AEDRPC using Kendell Coefficient of Concordance (W)?
- What is the reliability of AEDRPC using Phi Coefficient (0)?

## METHOD

The design of this study is instrumentation research design. The population of the study consists of 3586 tutorial staff from 5 State-owned universities where 1000 tutorial staff that was sampled using disproportionate by cluster random sampling technique. The instrument that was used for data collection for this study is a checklist titled “Appropriateness of Education Degree Research Projects’ Checklist (AEDRPC)” with 80 items with seven component clusters. The instrument was face validated by 7 experts/specialists in the area of measurement and evaluation. The checklist is formed with two options of appropriate and inappropriate. Content validity of faculty formats from various universities that offer education degree was used to answer the research question one, research question two was answered using Kendell Coefficient of Concordance (W) Statistics, while research question three was answered using Phi Coefficient (0) Statistics.

## RESULTS

**Research Question One:** What is the content validity of AEDRPC?

Table 1: Result of content validity of AEDRPC

S/N	Item Statement	Decision
	<b>Preliminary Pages</b>	<b>Relevant</b>
1	Has cover page different from title page	√
2	Title page is written in a sequential manner	√
3	Title page contained the appropriate information required by the faculty	√
4	Well written certification page	√
5	Dedicated the project to a living person and not to the dead or God	√
6	Used third person pronoun in writing acknowledgements	√
7	Acknowledged the personalities of interest that contributed to the project	√
8	Has a well written abstract	√
9	Contained a well arranged table of content	√
10	Has list of tables and figures	√
	<b>Chapter One</b>	
11	Issues are discussed in the background appropriate to the topic	√
12	Covered the variables of the topic in the background	√
13	Has non-ambiguity of statement	√
14	Has non double barreled statements	√
15	Research questions do not lead to a yes or no answer	√
16	Statement that can be measured are used	√
17	Aligned to the purpose of the study	√
18	Hypotheses are testable	√
19	The testing power of the hypotheses is clear	√
20	Research questions are suitable for the topic	√
	<b>Chapter Two</b>	
21	Introduced the chapter very well	√
22	Outlined the major areas of the chapter	√

23	Discussed the issues raised in the purpose of the study to be also in the conceptual framework	√
24	Reviewed the relevant variables of the topic	√
25	Used appropriate theory/model to explain the topic	√
26	Related the theory to the topic	√
27	Reviewed relevant empirical studies	√
28	Related the empirical studies to the present topic	√
29	Established gap to be filled in the study	√
30	Critiqued others view in line with the present topic	√
31	Adhered to APA format in citation	√
	<b>Chapter Three</b>	
32	The design is appropriate to the topic	√
33	The research explained the need to use such design	√
34	The design explained the procedure of for data collection	√
35	The design explained the use of its statistical technique	√
36	Instrument is in line with the topic	√
37	Items in the instrument are not ambiguous	√
38	Variables of the study is covered by the instrument(s)	√
39	Instrument is aligned with the purpose of the study	√
40	Explained the scoring pattern of the instrument	√
41	Clearly explained the instrument	√
42	Sample size is a fair representation of the population	√
43	Sampling technique is appropriate and well stated	√
44	Reliability of the instrument is well written	√
45	Method of data collection is well explained	√
46	Experts and specialist in the field of Educational Measurement and Evaluation are consulted for validation	√
47	Appropriate method of data analysis was stated	√
48	Required validity is carried out (face, content, criterion-related and construct)	√
	<b>Chapter Four</b>	
49	Collation of data was ensured	√
50	Scoring of responses to items of instruments is ensured appropriately	√
51	Computation of statistics/parameters are in order	√
52	Use of statistics/parameters are clearly stated	√
53	Appropriate statistical formula/formulae are stated and used	√
54	The basic assumptions underlying test of hypotheses/statistical tests were considered	√
55	Established the degree of freedom in testing hypotheses	√
56	Established the tail test for each test statistics	√
57	Units of analyses is considered	√
58	Used appropriate statistical tests	√
59	Non forgery of statistics/data	√
60	Acceptance/rejection of null hypotheses were stated	√
61	Ensured that descriptive statistics are explained well for the research questions	√
62	Deductions are made from the hypotheses	√
63	Inference are made from the findings	√
64	Summary of findings are explained	√
	<b>Chapter Five</b>	
65	If the recommendations are in line with the findings	√
66	If the recommendations are directed to the stakeholders involved	√
67	Discussion of findings is aligned with the variables discussed	√
68	Lacks found in the findings were incorporated to be improved on	√
69	Direct and linked recommendation statements are used	√
70	Discussions were adequately done and contribution to knowledge established	√
71	Findings of previous studies are compared to the present study	√
72	Conclusion was drawn	√
73	Implication for the study was well explained	√
74	Suggestion for further studies was outlined	√
	<b>References and Appendix</b>	
75	Used APA formatting in referencing	√
76	Copy(s) of the instrument is attached at the appendix	√

77	Population table is attached at the appendix	√
78	Sample table is attached at the appendix	√
79	Validation evidence is attached	√
80	Reliability calculation is attached	√

Table 1 shows the content validity of AEDRPC. It was indicated that the all the 80 items developed by the researcher met the content of format used in writing education research projects for degree (undergraduate and postgraduate) students. The conclusion is that the items on the checklist met the required content and can measure what they are set to measure.

**Research Question Two:** What is the reliability of AEDRPC using Kendell Coefficient of Concordance ( $W$ )?

Table 2: Validity coefficient of the items on Economics Mock Examination (EME) as judged by the three experts on its content

<b>n</b>	<b>W</b>	<b>Decision</b>
80	0.92	Very High Reliability

Table 2 shows the reliability of AEDRPC using Kendell Coefficient of Concordance ( $W$ ). The result of the analysis indicated that the number of items is 80 while the Kendal's coefficient of concordance validity is 0.92. The result indicates that all the objectives and content areas were well covered. Thus, the agreement among the seven judges and the distribution items to the objectives and content areas are enough evidence that the instrument is reliable. The conclusion is that there is a very high agreement/reliable among the judges on the items of AEDRPC.

**Research Question Three:** What is the reliability of AEDRPC using Phi Coefficient ( $\phi$ )?

**Table 3:** Phi Coefficient ( $\phi$ ) reliability for AEDRPC

<b>n</b>	<b>(<math>\phi</math>)</b>	<b>Decision</b>
1000	0.72	Highly Reliable

Table 3 shows the Phi Coefficient ( $\phi$ ) reliability for AEDRPC. The result of the analysis indicated that  $n$  is 1000 while Phi Coefficient ( $\phi$ ) reliability co-efficient is 0.72. This helped to establish the consistency of the AEDRPC. The result reveals that the AEDRPC has a high reliability and should be used. The conclusion is that AEDRPC is highly reliable for assessing the appropriateness of education degree research projects in Universities in South-East Geo-Political Zone of Nigeria.

## DISCUSSION

The result of the study revealed that the items on the checklist met the required content and can measure what they are set to measure. In line with this finding, Balogun and Mustapha (2014), concluded that test items that have high factor loading and satisfy other psychometric properties are important for selection in any instrument development and validation study. This implies that the items on AEDRPC are good to be used by assessors to assess the

appropriateness of education degree research projects in Universities. This is prove that the items on the checklist adequately measure what it set out to measure.

It was further revealed in this study that there is a very high agreement/reliable among the judges on the items of AEDRPC. This implies that the instrument can consistently measure the set objectives for which it was design to measure. In agreement with the above finding, Onye and Amaechi (2016) found out that their scale had a high reliability index of 0.84. This implies that the checklist can consistently and trustily measure the set objectives.

It was also found in this study that AEDRPC is highly reliable for assessing the appropriateness of education degree research projects in Universities in South-East Geo-Political Zone of Nigeria. This implies that the items on the checklist are internally consistent to measure the traits it ought to measure. Awofala (2011) found out that their instrument had good reliability with Cronbach alpha coefficient of 0.70. The value indicated that there is agreement in the scoring pattern of the items. This implies that researchers and evaluators can use AEDRPC in assessing the appropriateness of education degree research projects in Universities.

## **CONCLUSION**

Based on the findings of this study, it can be concluded that the 80 item checklist titled “Appropriateness of Education Degree Research Projects’ Checklist (AEDRPC)” are valid, suitable and reliable, to measure the appropriateness of education degree research projects in Universities in South-East Geo-Political Zone of Nigeria. Therefore the evaluators and academia should always adopt the instrument to ensure quality in research writing.

## **Recommendations**


Based on the findings of this study, the researchers recommend that:

- Evaluators and researchers in universities should adopt this instrument in assessing the appropriateness of education degree research projects in Universities.
- The university administration can adopt the instrument in assessing the appropriateness of education degree research projects in Universities.
- The instrument should be adopted as a means for maintaining uniformity and effectiveness in the management of university research.

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