Development and Validation of Students' Evaluation Scale for Lecturer's Teaching Effectiveness in Colleges of Education.

Ojo, Oloyede Akinniyi
School of Education, Emmanuel Alayande College of Education, Oyo

Abstract
This study developed, validated and used the Students' Evaluation Scale for Lecturer's Teaching Effectiveness in the College of Education (SESLTE-COE) to measure specific and observable classroom behaviours of lecturers. This study adopted the survey design. The purposive sampling was used to select four colleges in the south-west, Nigeria and 160 students per college selected from year 2 and 3 while stratified sampling was used to select schools and courses. A total of 640 students and 24 lecturers participated in the validation. The SESLTE-COE (r = 0.72) which consists of four components namely: classroom interaction (r = 0.72), evaluation (r = 0.72), personality (r = 0.72) and preparation (r = 0.72) was used by a sample of 1600 students to evaluate teaching effectiveness. Two research questions guided the study. Data were analysed using factor analysis, Cronbach alpha and standard error of measurement for reliability. The Average Factor Loading (AFL), Average Communality Value (ACV) and Iniial Eigen Value (IEV) of each component of SESLTE-COE are: classroom interaction (AFL= 0.44, ACV=0.60, IEV=3.61); evaluation (AFL= 0.46, ACV=0.60, IEV=2.64); personality (AFL= 0.45, ACV=0.60, IEV=2.34) and preparation (AFL= 0.44, ACV=0.61, IEV=2.27). Results further revealed that the reliability indices of all the sub-scales range from 0.7178 to 0.7189 with Preparation (α=.7189) indicating the highest reliability value and classroom interaction (α= .7178) showing the least reliability value. The reliability determination of the entire scale indicates that α = .7185. These values for different sub-scales and the entire scale show that 71.78- 71.89% of the variance in Teaching Effectiveness construct depends on true variance in the trait measured and that 18.11%- 18.22% depends on error variance. The use of SESLTE-COE could be considered for adoption in the evaluation of teaching effectiveness of lecturers in Colleges of Education in Nigeria.

Keywords: Teaching effectiveness scale, Classroom interaction, Students' rating of lecturers, Nigerian Colleges of Education.

Introduction

Education is a fundamental human right that should be accorded to all human beings solely by reason of being human. Education is considered as a weapon of change and a means of national development, and an instrument for developmental changes in the society. The importance and linkage of education to the development of any society is well known. It is in recognition of this importance that the international community and governments all over the world have made commitments for citizens to have access to education, which represents the sum total of all processes of learning in one's life. Okpala (2008) sees education as a process that emphasizes development, acculturation and learning how to learn. It can take place informally or in a non- formal setting. Education can also take place in formal setting having the school as its agent. The process of formal education is wide in scope. For instance, an educated person is more than a person who has acquired knowledge or skills. In fact, an individual, according to Okpala (2008) is considered educated when the individual is cultured, contributes positively to the development of the society, and has learnt how to learn.

Ukeje (2000) in his own remark stated that, "education is so powerful, it can lift up or impoverish", so it is important to make education very effective. Ukeje, however, adduced that a lot of the benefit derived from education depends on the quality of education particularly that of the teacher who is central to the educational process. It is, therefore, expected that only the intellectually promising and qualified persons should be trained to engage in the teaching industry. Teaching is a versatile and valued exercise that is geared towards bringing about achievement in students' learning. In view of the importance of teaching, there is need for it to be effective.

Since education has become the primary tool for the overall development of society, teacher education should occupy a position of pre-eminence in the planning and organization of the modern society. Teacher education was first given a great boost in the nation after the curriculum conference of the Nigeria Educational Research and Council (NERC) in 1969. This was well expressed in the 1971, 1981 and 2004 National Policy on Education document. The 2004 document stated in section 8B No. 70(a) that: "since no education system may rise above the quality of its teachers, teacher education shall continue to be given a major emphasis in all educational planning and development". This shows that the teacher is very important in ensuring quality in the teaching and learning process. However, the inadequacy and low professional competence of teachers in relation to effectiveness of teaching had prompted different groups and individuals to direct attention to the issue of teaching effectiveness. For instance, Banjo Commission (1960), set up to review the educational system of former Western region identified the preponderance of untrained teachers as a major factor responsible for falling standards in primary schools in the region.

The studies of Stringer and Finlay (2003) revealed that teachers who received feedback concerning their course ratings by students showed greater gains in subsequent ratings than the teachers who received no feedback. Also, studies of Cashin (2002), provided more research support as to the benefits of students' feedback on instructional performance. Research also indicates that students are the most qualified sources to report on the extent to which the learning experience was productive, informative, satisfying, or worthwhile. While opinions on these matters are not direct measures of instructor or

course effectiveness, they are legitimate indicators of student satisfaction, and there is substantial research linking student satisfaction to effective teaching (Theall and Franklin, 2001). A meta-analysis of 41 research studies provides the strongest evidence for the validity of student ratings since these studies investigated the relationship between student ratings and student learning. There are consistently high correlations between students' ratings of the "amount learned" in the course and their overall ratings of the teacher and course Gaubatz, (2000).

The establishment of Colleges of Education in Nigeria dates back to 1959 when the Federal Government of Nigeria set up a nine-man commission headed by Sir Eric Ashby. The body was charged with the task of recommending a pattern of education, which would be in keeping with the country's aspiration over the first two decades of independence. The emergence of the Advanced Teachers/Colleges of Education in Nigeria came as a direct result of Ashby's Commission report. The Commission's recommendation for Teacher's Grade One college was modified and gave rise to the new programme leading to the award of Nigeria Certificate in Education (N.C.E.). Today there are over sixty-five such colleges owned either by the federal, or the state governments or by private bodies. These colleges offer three years programme leading to the award of NCE. To maintain uniform standards, a body, the National Commission for Colleges of Education (NCCE) was set up to coordinate, moderate, accredit, and oversee the curriculum and quality control of the Colleges of Education nationwide (Folorunso, 2008).

The development of a society can always be traced to the development in its ivory tower. Higher institutions, of which Colleges of Education is one, were expected to be increasingly accountable for their traditional roles of research and teaching in their respective communities, while at the same time responsive to the society's changing priorities and pressures. They are expected to be proficient at creating new knowledge and communicating same to development, and most especially the quality of teaching received by the students. According to Section 5, No.32 of the Federal Government of Nigeria, National Policy on Education 4th Edition (2004), the objectives of higher education as referred to in this document cover the post-secondary section of the national education system which is given in Universities, Polytechnics and Colleges of Technology, Colleges of Education and Advanced Teachers Training Colleges. It states that higher education should aim at:

(a) the acquisition, development and inculcation of the proper value-orientation for the survival of the individual society;
(b) the development of the intellectual capacities of individuals to understand and appreciate their environments;
(c) the acquisition of both physical and intellectual skills which will enable individual to develop into useful members of the communities;
(d) the acquisition of an objective view of the local and external environments.

Also, No. 33 of the same section 5, states that higher education institutions should pursue those goals through:

(i) Teaching;
(ii) Research;
(iii) The dissemination of existing and new information;
(iv) The pursuit of service to the community;
(v) Being a storehouse of knowledge.

Although, there are so many ways of ensuring teaching effectiveness, but the use of students' evaluation may be more appropriate as an acceptable and veritable tool because it will provide feedback that is valid, reliable, and relatively free of bias. More so, for quite some time now, there are strong suggestions in higher institutions that the professional abilities of teachers as those who impart knowledge to students be constantly evaluated for the purpose of achieving better teaching effectiveness (Kaufman, 2002). The more important aspect of such suggestions is that students ought to play a greater role in such evaluations. The rationale for this is very clear; being major stakeholders in the teaching and learning process, students should be able to determine whether or not teaching is effective. More significantly, on the basis of the students' feedback the teacher is, in turn, able to make adjustments to improve his teaching where the need arises. Therefore, teaching effectiveness in the Nigerian Colleges of Education is a significant measure that will influence learning outcomes.

The all and Franklin (2001) agreed that students are the most powerful instruments in rating teachers' performance in schools because of their roles in learning. Therefore, the development of a reliable and valid scale to measure teaching effectiveness in Nigeria Colleges of Education is germane to tracking lecturers, most especially, the newly appointed lecturers who have little or no experience in the teaching and learning process in order to improve learning outcomes. It is quite pertinent to observe that in all the research efforts highlighted so far, not much attention has been given to students in Colleges of Education especially in Nigeria. This is in-spite of the fact that these institutions are fast forming a formidable sector of the nation's educational system.

Statement of the Problem

The assessment of teachers' teaching effectiveness revealed that students' ratings are reliable, valid and relatively unbiased and as a means of ensuring quality. Teaching effectiveness is already trending especially among university and little or no emphasis is placed on college of education whose major function is the production of teachers. Based on this, the researcher developed, validated and used the

Students' Evaluation scale for lecturers Teaching Effectiveness Scale in Colleges of Education (SESLTS-CE) to measure specific and observable classroom behaviours that are indicative of teaching effectiveness in Colleges of Education.

Research Questions.

(1). How many reliable and interpretable components of SESE are there among the variables?

(2) What are the psychometric properties in terms of reliability of:

(i) the identified sub scale of Students' evaluation scale for lecturer's teaching effectiveness (SESLTE-COE)?

(ii) the entire Students' evaluation scale for lecturer's teaching effectiveness (SESLTE-COE)?

Methodology

This study employed the mixed method design. It combines qualitative and quantitative approaches together. The qualitative approach which is the first aspect is in the area of using focus group discussion to generate items needed for developing and validating the instrument used for the study which is students' evaluation scale for lecturer's teaching effectiveness in Colleges of Education (SESLTE-COE). The quantitative approach which is an instrumental type of research entails the validation of the instrument and the subsequent collection of data to evaluate teaching effectiveness of some lecturers' teaching effectiveness in sampled Colleges of Education in South-western, Nigeria.

Population

The target population of this study was all the years two and three students undergoing the Nigerian Certificate in Education (NCE) programmes and their lecturers in Colleges of Education located in the Southwest zone of Nigeria. Year one students were not considered for this study because they were still very new in the college and might not have been taught by some of the lecturers involved in the research. The stratified sampling technique was employed in the grouping of the Colleges of Education into federal, state and private. In this study, only federal and state Colleges of Education were considered. At the federal level, two out of four Colleges of Education in the Southwest representing 50% that run regular programmes were purposively selected because others do not have all the five schools used for the study, while at the state level, 29% of the total number of Colleges of Education which represent two out of seven were selected to cover the remaining sampled states. In all, four Colleges of Education was the sample for this study. Also, four (4) course combinations were drawn from each school of the colleges for uniformity across the selected Colleges of Education. In each of the selected colleges, one hundred and sixty (160) students from each of the 4 Colleges of Education, stratified by schools, course combinations and year of study were randomly selected to evaluate the three identified lecturers teaching the selected courses of study. In overall, a total of six hundred and forty (640) students and twenty – four (24) lecturers participated in the validation process of the study. The instrument, SESLTE-CE used for this study was developed by the researcher, which proceeded in a number of identifiable stages in accordance to the principles guiding the development of valid instruments. The stages are planning, preparing, focus group discussions, pilot testing and analysis of draft instrument. The purpose of this scale is to evaluate teaching effectiveness in Colleges of Education.

Generation of Items

Generation of items involves the initial writing and collation of draft items into a pool. The items were generated from reviews of relevant literature, focus group discussions and written assignments in form of essay by 100 students randomly selected across different schools in Emmanuel Alayande College of Education, Oyo. The students were to write an essay on what they perceived as the qualities of a good lecturer. five lecturers from Emmanuel Alayande College of Education who had been earlier informed participated in a focus group discussion. The purpose of the discussion was to deliberate on what they regarded as indicators of teaching effectiveness.

At the end of the discussion, it was gathered that effective teaching can be considered from the following: mastery of subject matter, teaching methods, communication skill, instructional materials, course material, motivation/ reinforcement techniques, strategies for individual differences, methodology, classroom management and evaluation style, among others. Lecturers' personality (intelligence, hard work, friendliness, punctuality, firmness, self-discipline, dressing, commitment, patience, tolerance and approachability. Also, materials preparation which includes the quality, adequacy and relevance of instructional material was considered. Curricular preparation was also examined to include the appropriateness of the content of the lesson. Finally, the issue of environment as a factor of effectiveness was also raised. The location of the college, lecture rooms arrangement, ventilation and physical facilities were also identified as the measure of teaching effectiveness. At the end, a total of 113 items were generated to form SESLTE-CE.

The scale was divided into two sections, sections A and B. Section A sought information about the students' background and the name of the lecturer identified by the researcher to be rated by the students while section B consisted of the 113 generated items.

Establishing the Face and Content Validity

The researcher critically examined the items for correctness to ensure that the indicators are well

represented in the draft items. To establish content validity, five experts in the area of educational evaluation examined the extent to which the items measured teaching effectiveness. Their suggestions were used to restructure and polish some of the items. There was an outright deletion of some items where they were duplicated, and new ones were generated where necessary. The face validity, in terms of the appearance, organization and typing format of the scale was examined at this stage. The items were again given back to these experts for final screening. After the initial content validation, the pool of items was printed and then administered to the target participants for pilot testing.

Pilot Testing

The scale was administered to the selected sample of 640 respondents representing the four Colleges of Education sampled for this study by the researcher. Four research assistants were trained by the researcher in each of the sampled Colleges of Education to assist in administering the scale. The training was considered to be very important in order to ensure objectivity of data collection and control for possible procedural bias. Also, to ensure uniform administration conditions across the colleges, the research assistants to be involved in the data collection were given guidelines detailing specific instructions on how to administer the scale. Letter of introduction was collected from the Institute of Education for ease of entry into the Colleges of Education used for the study.

Establishing the Subscales of SESLTE-COE

The purpose of the factor analysis in the construction of the scale is to "examine the stability of the factor structure and provide information that will facilitate the refinement of a new measure" (Hinkin, 2005). At this stage, the researcher established the factor structure or dimensionality of the construct. Principal component factor analysis with orthogonal varimax rotation was used to analyse the data in order to determine the number of underlying factors. A scree test was also used to determine the number of meaningful factors. Two criteria were used to identify major factors of the scale:

- The eigen value of the factor must be greater than 1 (Kaiser, 1960);
- The scree plots for the factors must be on a slope. (Steven, 1992).

Determination of SESLTE-COE's Psychometric Properties

The internal consistency of the entire scale was estimated using the Cronbach reliability coefficient alpha (R). A high alpha is desirable since it reflects that the items are homogeneous and thereby measuring the same underlying property. Nunnally and Bernstein (2004) suggest that an alpha level of at least .80 is sufficient for most purposes, given that correlations are attenuated very little measurement error at that level. Furthermore, DeVellis (2001) stated that alpha values between .80 and .90 should be considered very good. Therefore, in this study the suggestions of Nunnally and Bernstein (2004) and DeVellis (2001) were considered. To answer research question 1, the data was factor-analysed using the exploratory factor procedure. Cronbach alpha and standard error of measurement were used to establish the psychometric properties of the scale and its sub – scales in order to answer research question 2.

Results and Discussion

Results in this section are presented along the lines of stated research questions.

Research Question 1

(i) How many reliable and interpretable components are there among the variables?

Two tests of assumptions to determine the suitability of factor analysis were carried out and these are: Kaiser-Meyer-Olkin's test of sampling adequacy and Bartlett's test of sphericity.

Table 1 shows the results of the two tests.

Table 1: Tests of Assumptions of Factor Analysis KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.690
Bartlett's Test of Sphericity Approx. Chi-Square	2.805E4
Df	6328
Sig.	.000

Kaiser-Meyer-Olkin's (KMO) measure of sampling adequacy shows that the value is 0.690. KMO values vary between 0 and 1. Values closer to 1 are better. A value of 0.6 is suggested as minimum loading. Thus factor analysis can be conducted based on KMO's test. Bartlett's test of sphericity tests the null hypothesis that the correlation matrix is an identity. The decision here is that for factor analysis to be tenable, the decision is to reject the null hypothesis. Table 1 shows that the value is significant and as such the hypothesis that it is an identity is rejected. Thus, factor analysis can be conducted. Taken together, these tests provide a minimum standard which should be passed before a factor analysis (or a principal component analysis) is conducted.

Table 2 shows the communalities values for all the initial components. This is the proportion of each variable's variance that can be explained by the factors (e.g., the underlying latent continua). It is also defined as the sum of squared factor loadings for the variable.

Table 2: Communality Values

Items	Initial	Extract	Items	Initial	Extract	items	Initial	Extract	Items	Initial	Extract
1	1.000	.678	29	1.000	.582	57	1.000	.648	85	1.000	.616
2	1.000	.683	30	1.000	.628	58	1.000	.625	86	1.000	.614
3	1.000	.661	31	1.000	.620	59	1.000	.609	87	1.000	.637
4	1.000	.634	32	1.000	.557	60	1.000	.598	88	1.000	.616
5	1.000	.654	33	1.000	.637	61	1.000	.564	89	1.000	.586
6	1.000	.579	34	1.000	.577	62	1.000	.529	90	1.000	.605
7	1.000	.682	35	1.000	.604	63	1.000	.633	91	1.000	.580
8	1.000	.643	36	1.000	.590	64	1.000	.633	92	1.000	.577
9	1.000	.610	37	1.000	.637	65	1.000	.576	93	1.000	.592
10	1.000	.614	38	1.000	.603	66	1.000	.606	94	1.000	.604
11	1.000	.642	39	1.000	.587	67	1.000	.621	95	1.000	.625
12	1.000	.588	40	1.000	.596	68	1.000	.581	96	1.000	.596
13	1.000	.590	41	1.000	.593	69	1.000	.641	97	1.000	.576
14	1,000	.598	42	1.000	.605	70	1.000	.585	98	1.000	.638
15	1.000	.667	43	1.000	.532	71	1.000	.633	99	1.000	.538
16	1.000	.656	44	1.000	.505	72	1.000	.582	100	1.000	.533
17	1.000	.608	45	1.000	.612	73	1.000	.596	101	1.000	.641
18	1.000	.652	46	1.000	.537	74	1.000	.621	102	1.000	.635
19	1.000	.591	47	1.000	.578	75	1.000	.647	103	1.000	.550
20	1.000	.541	48	1.000	.589	76	1.000	.597	104	1.000	.612
21	1.000	.621	49	1.000	.665	77	1.000	.575	105	1.000	.620
22	1.000	.634	50	1.000	.561	78	1.000	.643	106	1.000	.580
23	1.000	.602	51	1.000	.622	79	1.000	.594	107	1.000	.580
24	1.000	.601	52	1.000	.634	80	1.000	.535	108	1.000	.551
25	1.000	.605	53	1.000	.592	81	1.000	.591	109	1.000	.524
26	1.000	.604	54	1.000	.653	82	1.000	.638	110	1.000	.579
27	1.000	.672	55	1.000	.613	83	1.000	.612	111	1.000	.587
28	1.000	.640	56	1.000	.597	84	1.000	.550	112	1.000	.583
									113	1.000	.496

The communality estimates ranged from 0.496-0.683. For item 2 with a communality estimate of 0.683, implies that 68.3% of the item which is adequate time distribution can be predicted from data on the remaining one hundred and twelve items. This implies that from the remaining one-hundred and twelve characteristics, we could determine the incidence of adequate time distribution behaviour for teaching effectiveness scale within 68.3% of the true value on the average. For item 113 with the least communality estimate of 0.496, this implies that 49.6% of the item which is to relate course content to other field and real life situation can be predicted from data on the remaining one-hundred and twelve characteristics. By knowing teaching effectiveness scale on the remaining one-hundred and twelve characteristics, we could determine the incidence of relating course content to other field and real life situation for teaching effectiveness scale within 49.6% of the true value on the average. On the whole, the communality estimates are considered high for a large number of characteristics as sixty characteristics (53.09%) possess communality estimate of 0.600 and above with fifty-two characteristics (46.02%) possess communality estimate of 0.500 and above while only one characteristic (0.89%) possesses a communality estimate of below 0.500.

Four criteria were used in determining reliable and interpretable components and these are: Eigen values greater than 1, retaining 70% of the components accounting for the total variance, Scree plot test, and ensuring that the discrepancy of the residuals greater than 0.05 between observed and reproduced correlation is kept at the barest minimum. Forty-four components had Eigen value greater than 1 as shown in Table 4.3 and this criterion is overlooked because it lacks simplicity and more so Cattell (1966) and Kaiser's rule (1970) do not seems to be important when the number of variables are greater than thirty.

Table 3.1 Initial Eigen values and Percentage of Variance Explained by Each Component

	Initial Eigen Values			Extraction Sums of Squared Loadings				Initial Eigen Values			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Componen	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.614	3.198	3.198	3.614	3.198	3.198	23	1.411	1.248	38.418	1.411	1.248	38.418
2	2.639	2.335	5.533	2.639	2.335	5.533	24	1.393	1.233	39.651	1.393	1.233	39.651
3	2.343	2.073	7.607	2.343	2.073	7.607	25	1.373	1.215	40.867	1.373	1.215	40.867
4	2.270	2.009	9.616	2.270	2.009	9.616	26	1.324	1.171	42.038	1.324	1.171	42.038
5	2.157	1.909	11.525	2.157	1.909	11.525	27	1.300	1.151	43.189	1.300	1.151	43.189
6	2.079	1.840	13.365	2.079	1.840	13.365	28	1.273	1.126	44.315	1.273	1.126	44.315
7	2.006	1.775	15.141	2.006	1.775	15.141	29	1.260	1.115	45.430	1.260	1.115	45.430
8	1.940	1.717	16.858	1.940	1.717	16.858	30	1.245	1.102	46.532	1.245	1.102	46.532
9	1.875	1.660	18.517	1.875	1.660	18.517	31	1.221	1.081	47.612	1.221	1.081	47.612
10	1.860	1.646	20.164	1.860	1.646	20.164	32	1.195	1.058	48.670	1.195	1.058	48.670
11	1.806	1.598	21.761	1.806	1.598	21.761	33	1.186	1.050	49.720	1.186	1.050	49.720
12	1.752	1.551	23.312	1.752	1.551	23.312	34	1.165	1.031	50.750	1.165	1.031	50.750
13	1.735	1.535	24.847	1.735	1.535	24.847	35	1.147	1.015	51.765	1.147	1.015	51.765
14	1.687	1.493	26.340	1.687	1.493	26.340	36	1.133	1.003	52.768	1.133	1.003	52.768
15	1.631	1.444	27.784	1.631	1.444	27.784	37	1.118	.989	53.757	1.118	.989	53.757
16	1.616	1.430	29.214	1.616	1.430	29.214	38	1.088	.963	54.720	1.088	.963	54.720
17	1.578	1.397	30.611	1.578	1.397	30.611	39	1.083	.959	55.679	1.083	.959	55.679
18	1.533	1.356	31.967	1.533	1.356	31.967	40	1.072	.949	56.627	1.072	.949	56.627
19	1.501	1.328	33.295	1.501	1.328	33.295	41	1.052	.931	57.559	1.052	.931	57.559
20	1.471	1.302	34.597	1.471	1.302	34.597	42	1.038	.919	58.478	1.038	.919	58.478
21	1.462	1.293	35.891	1.462	1.293	35.891	43	1.023	.905	59.383	1.023	.905	59.383
22	1.446	1.279	37.170	1.446	1.279	37.170	44	1.007	.891	60.273	1.007	.891	60.273

Finally, factor loading was used to categorized the retained 73 items into four components namely Classroom interaction (38), Evaluation (13), Personality (14) and Preparation (08). As shown in the table 4.

Table 4: Components of Teaching Effectiveness

S/N	Components	Number of Items	Range of Factor Loading
1	Classroom Interaction	38	0.317 - 0.586
2	Evaluation	13	0.315 – 0.641
3	Personality	14	0.343 – 0.678
4	Preparation	08	0.343 – 0.661

Research Question 2

What are the psychometric properties in terms of reliability of?

(i) the identified sub scales of Students Evaluation of Teaching Effectiveness Scale (SESLTE-COE)?

(ii) the entire Students Evaluation of Teaching Effectiveness Scale (SESLTE-COE)?

Table 5: Reliability of Teaching Effectiveness Scale Using Cronbach Alpha

Sub-scale	Reliability Determination (Cronbach Alpha)
Classroom Interaction	.7178
Evaluation	.7187
Personality	.7185
Preparation	.7189
Entire scale	
Teaching Effectiveness	.7185

Table 5 shows that the reliability indices of all the sub-scales range from 0.7178 to 0.7189 with Preparation (α=.7189) indicating the highest reliability value and classroom interaction (α= .7178) showing the least reliability value. The reliability determination of the entire scale indicates that α = .7185. These values for different sub-scales and the entire scale show that 71.78- 71.89% of the variance in Teaching Effectiveness construct depends on true variance in the trait measured and that 18.11%-18.22% depends on error variance.

Table 6: Reliability of Teaching Effectiveness Scale Using Standard Error of Measurement

Sub-scale	Standard Error of Measurement
Classroom Interaction	(51-177) ± 11.09
Evaluation	(30-64) ± 4.02
Personality	(46-68) ± 3.96
Preparation	(25-40) ± 2.80
Entire scale	
Teaching Effectiveness	(170-331) ± 16.17

Standard error of measurement is an index of measurement accuracy that is best suited for interpretation of individual scores. The range of scores for ***Classroom Interaction*** from Table 4.6 indicates that the true score would lie between 40 and 188 to the nearest whole number at 95% confidence interval. In the case of ***evaluation*** component, the true score would lie between 26 and 68. In the case of ***Personality and preparation c***omponents of teaching effectiveness, the range of scores would lie between 42 and 72, and 22 and 43 respectively. The probability of the scores falling outside the band of values is five times out of one-hundred.

Conclusion

The constructed Students' evaluation scale for lecturer's teaching effectiveness in Colleges of Education which was also validated and put to use in this study is reliable in determining the teaching effectiveness of lecturers. This study has shown that students, especially in the tertiary institutions can be relied upon to give some credible judgment with regards to lecturers' performance, especially those that are known to them. Students' variables in the school like their course of study and year of study have the potential to explain the pattern of teaching effectiveness of their lecturers. Gender of students does not seem to influence evaluation of teaching effectiveness of their lecturers in this study. Also, lecturers' gender is not a determinant of lecturers' teaching effectiveness. Using principal component analysis, four components were reliably extracted from the original one-hundred and twenty-one items of SESLTE-COE, and these are ***Classroom Interaction, Evaluation, Personality and Preparation***. The reliability determination using internal-consistency by Cronbach alpha shows that all the four sub-scales and the entire scale are reliable. Standard error of measurement, an alternate way of expressing test reliability was used to express individual scores taking into considerations the actual or obtained scores and the true score, which in practice cannot be measured. This gives measurement accuracy by providing bandwidths of scores for different scales by taking into consideration 5% of error tolerance or 95% confidence interval on the instrument. The bandwidths of scores indicate that it is most likely reliable in predicting the scores on the same instrument when it is attempted again.

Recommendations

It is recommended that this SESLTE-COE be considered for adoption in the evaluation of teaching effectiveness of lecturers in Colleges of Education in Nigeria. It is also recommended that students' input though minimally be considered for promotion exercise for lecturers. It is also recommended that the outcome of this work be made known to all the schools used for this study. This becomes necessary in order to give them feedback which could engender corrections and improvement. Seminars should be organised for students to improve their objectivity when rating sensitive issues like teaching effectiveness of lecturers as well as their promotion exercises. This is to further confer some validity on such exercises. Conferences and seminars should also be organized for lecturers on how their classroom interactions could be further enhanced. Lecturer – student ratio should be considered, as it could hinder their effective preparation for meaningful teaching.

References

Adegbayi, J. Y. 2011. Construction of Mathematics Attitude Scale Using Factor Analysis. An unpublished M.Ed paper presented to ICEE, Institute of Education, University of Ibadan.

Bamidele, S.O. 2004. Education Research in Perspective. Niyi comm. and printing ventures. University of Ibadan.

Campbell, D.T. and Stanley J.C. 2003. Experimental and Quasi – experimental Designs for Research. Chicago: Rand McNally.

Catell, R.B. 1966. the secree test for the number of factors. Multivariate Behavioural Research, 1, 245.

Chapman, E. 2003. Development and Validation of a Brief mathematics attitude Scale for Primary – aged Students. Journal of Educational Enquiry, 4 (2), 63 – 73.

Cashin, W.E. 2002. "Students' Rating of Teaching Educational Research in Teaching". 15, 22-23.

Devillis, R.F., 2001.Scale Development: Theory and Applications: New bury park, C.A. Sage Publications.

Falaye F.V., 2008 Development and Validation of Students' Attitude Towards Social Studies Scale (SAT 3S). *Journals of the Social Sciences 3 (2), 185 – 188.*

Federal Ministry of Education (FME, 2014). *The National Policy on Education* Lagos: NERDC press.

Folorunso, J.O., 2008. Evaluation of the Pre-NCE Programme in Science, Technical and Languages Education in Colleges of Education. A Post field seminar paper presented to ICEE, University of Ibadan.

Good, T.L., 2006. teaching effect and teacher evaluation. In J.P. Sikula, T.J. Buttery, and E. Guyton (Eds), handbook of research on teacher education. pp 617 – 665. New York Macmillan.

Guabatz, N. 2000. What's the use of Student Rating of Teaching Effectiveness?. *http://csti.syr.edu/cst/T-L/stdrate.htm*

Hinkin, T.R. 2005. A Review of Scale Development and Application of New Scales to measure the French Raven bases of social power. Journal of Applied Psychology, 74 (4) 561 – 567.

Kaiser, H.E. 1960. The Application of Electronic Computers to Factor Analysis Educational Psychological Measurement. 20: 141 – 151.

Kaufman, D.M. 2002 "Student Evaluation of Faculty

Teaching. A Paper presented at SFUFA Forum Kentucky, U.S.A.

Nunnally, J.C. and Beinstein, L.H. 2004. Psychometric Theory Willey New York: McGrawHill.

Ojo, O. A., 2013. Development, Validation and Use of University Students' evaluation scale for lecturer's teaching effectiveness (USESLTE). A Ph.D thesis in ICEE University of Ibadan.

Okpala, P.N., 2008. Evaluation – Driven Educational Programmes for Sustainable National Development: The Roles of Institutes of Education in Nigeria. A Guest Lecture delivered at the 60th Anniversary Celebration of the University of Ibadan. P 2.

Polit, D. F. & Beck, C. T. 2004. *Nursing research: Principles and methods*. (7ed.). Philadelphia: Lippincott, Williams & Wilkins.

Stevens, J. 1992. Applied Multivariate Statistics for the Social Sciences, 2nd Edn. Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Stringer, M. and Finlay, C. 2003. Assuring Quality Through Student Evaluation. In R. Ellis (ed). *Quality Assurrance for University Teaching Milton. Open University Press*

Theall, M. and Franklin, J. 2001 "Looking for bias in all the wrong places- A search for truth or a witch hunt in student ratings of instruction? "In the students rating debate; are they valid? How can we best use them?

Theresa, M.A. 2006. School Context, Student Attitudes and Behaviour, and Academic Acheivement: An Exploratory Analysis www.mdrc.org. Copyright © 2006 by MDRC.

Thondike, R. L 1971. Educational Measurement (2nd Edition) Washington D.C. American Council on Education. 1 – 30.

Ukeje,B.O., 2000. Teacher Education in Nigeria: current Status, 21st Century Challenges and strategies for improvement in Faculty of Education, University of Jos.

Wilhot, B.P., 2006. "Student Evaluation: The Urban – Rural Dimension Journal of ASCILLITE 11, 26 – 28.

Zahn, D.K. and Schrammn, R.M. 2002. Student Perception of Teacher Effectiveness Based on Teacher Employment and Course Skill Level Bussiness Education Forum 46 (3) 16 – 18.

Zeller R.A. and Carmines, E.G. 2000 measurement in the society sciences: the link between theory and data.cambridge, m.a. gambridge university press.