DEVELOPMENT, VALIDATION AND USE OF STUDENTS' EVALUATION OF TEACHING EFFECTIVENESS SCALE IN COLLEGES OF EDUCATION IN NIGERIA

By

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ABSTRACT

Student's evaluation of lecturers' teaching effectiveness at the tertiary level of education in Nigeria is being advocated by educators. While universities are currently evolving the modalities of evaluating lecturers' teaching effectiveness by students, colleges of education recorded little or no attempt in this respect. Hence, this study developed, validated and used the Students' Evaluation of Teaching Effectiveness Scale in the College of Education (SETES-CE) to measure specific and observable classroom behaviours of lecturers.

This study adopted a survey design. 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 SETES-CE (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. Eight research questions guided the study. Data was analysed using descriptive statistics, t-test, ANOVA and factor analysis.

The Average Factor Loading (AFL), Average Communality Value (ACV) and Initial Eigen Value (IEV) of each component of SETES-CE 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). Students' ratings for SETES-CE varies accordingly for: classroom interaction (152.60 - 156.38); evaluation (52.65 - 53.32); personality (57.04 - 57.96) and preparation (32.88 - 32.93). There was a significant difference in the male and female students' ratings of their lecturers' personality (t=2.67, df: 1583, $p < .05$). There exists a significant mean difference in classroom interaction ($F_{(4, 1595)} = 6.41$; $p < .05$) and personality ($F_{(4, 1580)} = 3.03$; $p < .05$) of the lecturers rated. For classroom interaction, age ($F_{(12, 1587)} = 2.24$, $p<.005$), course of study ($F_{(19, 1580)} = 3.54$, $p < .05$) and year of study (t=-2.82; df: 1598, $p < .05$) of the students significantly influenced the rating of their lecturers, while age ($F_{(12, 1576)} = 1.79$, $p < .05$ and course of study ($F_{(19, 1569)} = 2.25$, $p <.05$) significantly influenced the ratings of their lecturers' evaluation, whereas students' year of study did not. Only course of study of the students significantly influenced the way they rated their lecturers' personality ($F_{(19, 1565)} = 1.67$, $p < .05$), while both age and year of study did not show significant differences in lecturers' personality. In terms of preparation, lecturers' rank ($F_{(6, 1578)} = 2.87$: $p < .05$) and years of experience ($F_{(11, 1573)} = 1.83$: $p < .05$) significantly influenced their teaching effectiveness.

Students, especially in the colleges of education can be relied upon to evaluate their lecturers' teaching effectiveness. Students' variables like course and year of study influence their pattern of ratings. The use of SETES-CE could be considered for adoption in the evaluation of teaching effectiveness of lecturers in Colleges of Education in Nigeria.

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

Word count: 494

DEDICATION

This work is dedicated to Almighty God, the Alpha and Omega of ALL things. To HIM be all the glory. Also to my darling wife, Pastor (Mrs) Mosunmola OJO and my Children: Inioluwa, Adebola, Adeboye and Adebolu.

CERTIFICATION

I certify that this work was carried out under my supervision by Mr. O.A.Ojo in the International Centre for Educational Evaluation, Institute of Education, University of Ibadan.

……..

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INTRODUCTION

1.1 Background to the Problem

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 emphasises 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.

Education is also seen as a social responsibility of government to its people (Abdullahi, 2005), which drives the growth, development and transformation of any meaningful national development; hence appropriate attention towards the growth and development of education is imperative. As important as education is in the life of any nation, the educational system of Nigeria has been described by Obemeata (1995) as an unprofitable venture, which has failed to yield the expected dividends. The future of any nation depends on the quality of its educational system, which in turn depends on the effectiveness of the teachers. The maxim that no educational system can rise above the quality of its teachers and that no nation can rise above the level of its teaching staff underscores, according to Omoregie, 2006, the roles of the teacher and teacher educational programmes in national development

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 – 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.

Taiwo Commission (1969) also showed concern for the standard of education in the West and observed that the educational objectives in the primary school curriculum in the region are imperfectly realized due to deficient knowledge of subject matter on the part of too many teachers and misconception of the teachers' function. Taiwo (1980) and Ezewu (1983) also commented on poor quality of teaching personnel in Nigeria schools. Ezewu (1983) remarked that it was a problem as old as the history of western education in the country and it persists till present day. The training of competent teachers is one of the major problems confronting the effectiveness of teaching, and good academic achievement of the students can only be provided through quality and effective teaching. Therefore, this problem cannot be overlooked. Teachers need to have information about the effectiveness of all the activities in the classroom to further improve the standard of education of both the teachers and the students.

In the twentieth century, there were few students' evaluation before the 1920s, but students' evaluation programme was introduced at Harvard, the University of Washington,

Purdue University, the University of Texas and other Institutions in the mid 1920s. Barr (1948) noted 138 studies of teaching efficiency written between 1905 and 1948, and De wolf (1974) summarized 220 studies of students' evaluation of teaching effectiveness that were written between 1908 and 1974. The term, "Students' evaluation of teacher performance" was first introduced in the ERIC system in 1976; between 1976 and 1980, there were 1,050 published and unpublished studies under the heading and approximately half of those had appeared since 1980. It was also in the year 399AD that Socrates was executed for using his teaching to "corrupt" the youth of Athens. To the society of his time, Socrates was not involved in effective teaching.

In 1991, the International Institute for Educational Learning published the first edition of Increasing Teacher Effectiveness, by Lorin Anderson in its "Fundamentals of Educational Planning" series. This booklet was used primarily by the researchers in ministries and agencies, haven developed teachers' questionnaires for their studies. Even in 2003, the Organisation for Economic, Operation and Development (OECD) and the United Nations Educational, Scientific and Cultural Organisation (UNESCO) were looking at several booklets for insights for their World Education Indicators programme.

Evaluation of teaching effectiveness has changed over time along with the definitions of what effective teaching is, due in part to increasing state and federal attention to school – level and classroom – level accountability for student learning. Effective teaching has been defined in many ways throughout the years (Campbell, Kyriakides, Muijs and Robinson, 2003; Chang and Tsui, 1999; Crickshank and Haefele, 1990; Good, 1996; Muijs, 2006). Therefore, due to numerous definitions and perceptions of scholars on teaching effectiveness, the idea of feedback to both the students and the teachers also seems to be a problem in the educational sector; the practicing teachers stand to gain more knowledge from knowing about the perception of their students towards their activities. Other proponents of students' evaluation of their teachers have stressed that such a practice, while providing a source of diagnostic feedback to teachers about the effectiveness of their teaching, may also reveal the criteria used by the students in their rating of teachers (Constine, 1997); provide a measure of teaching effectiveness to be used in promoting decision and constitute a source of information for students to be used in selecting subject teachers (Wilson, 1996).

The studies of Stringer and Finlay (1993) 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), and Onocha (1995, 1996) 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).

However, Orji (2004), stated that the idea of using students' rating in evaluating their teachers is yet to be fully accepted in some circles. Also, those opposed to the practice argued that it may not be possible to make specific recommendations (based on students' rating) to teachers' perception in improving their classroom instruction because such ratings generally lack specificity and at times require the rater to make a number of inferences about the underlying constructs (James, 1998). It has further been argued that students are not competent to appropriately define what effective teaching is since other extraneous factors may hinder their objective rating of the teacher. Stringer and Irwing (1998) mentioned that extraneous factors which include the looks of a teacher or even the tone of his voice may colour the students' judgment and these may threaten the teacher's own position in case of unfavourable comments about his teaching.

Also, gender, teaching experience, age, rank, year of study and course of study may contribute to the students' evaluation of teaching effectiveness. Tatro (1995) identified gender differences in college students' rating of their lecturers. Specifically, female lecturers were found to have received higher ratings than their male counterparts. On the part of students, it was found that female students gave higher rating than their male counterpart as regards the teaching effectiveness of their lecturers. Similarly, male students rated male instructors higher than female instructors, while female students rated female instructors higher than the males (Lueck, 1993). Bare and Hill (1992), found significant difference in students' ratings as a result of type of courses offered.

The use and acceptance of students' evaluation of teaching (SET) is widespread in higher education. Wright (2004) suggested that the instructor who provides an "entertainment" experience in class will likely receive a more favourable evaluation. In another perspective, students may be confused about the purpose and value of ratings, often completing forms as quickly as possible.

These criticisms notwithstanding, the usefulness of students' evaluation of teachers' activities seem to have stimulated considerable research particularly in the United State of America and Canada where the use of students' rating in evaluating teachers' effectiveness is common and widely endorsed by both students and teachers (Marsh & Roche, 1992; Masters, 1998). It had also been argued that teaching is considered effective only if students' performance improves after a period of instruction in a manner consistent with the goal of instruction (Stringer & Irwing, 1998). Therefore, it appears that effective teaching is measured by change in students' knowledge exhibited in their academic performance (Orji, (2004).

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. Moreso, 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.

Findings from research indicate that much has been done in the area of teacher education in general and improvement on teaching in particular. Such research works include those that focused on:

- students' attitudes during teaching practice (Flander,1961; Belt, 1967; Cope, 1969; and Ward, 1970)
- students' evaluation of teaching effectiveness (Marsh,1987; Ogunniyi, 2004 and Overall & Marsh, 1980);
- the development of measuring scale (Falaye, 2008; Marie and Jean-Francois,1990; Martha, George and Marsh , 2004 and Randy,1998),
- school effectiveness (Ojo, 2004)
- training package for co-operating teachers (Adeniran,1987).

Research indicates that instructors benefit most from formative evaluation (evaluation to improve teaching). This type of evaluation enables the instructor to monitor the progress of teaching and learning process. When the instructor understands the feedback provided during the lesson and when assistance and resources for making improvements are available, it boosts the effectiveness of teaching. Murray (1994) states that "research on students' evaluation of teaching generally concludes that students' rating tends to be reliable, valid, relatively unbiased and useful". In order to justify his assertion, he concluded that evaluations are generally consistent across raters, rating forms, courses and time, periods for a given semester, and they also correlate moderately highly to evaluations made of the same instructor by independent observers. Furthermore, they correlate significantly with various objective indicators of students' performance, such as performance on standardized examinations. Finally, they correlate very low due to the effect of extraneous factors such as class size and security of grading (Murray, 1994).

Theall 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.

1.2 Statement of the Problem

The need to entrench quality assurance in teaching and learning at all levels of Education particularly at the higher institutions of learning in Nigeria is an imperative. There is a growing clamour to involve students in the assessment of their teachers' teaching effectiveness as findings reveal that students' ratings are reliable, valid and relatively unbiased. Moreover, it is regarded as a means of ensuring quality. Based on the strength of students' assessment of their teachers' teaching effectiveness, higher institutions, especially the universities are currently exploring this approach as a means of building quality assurance into teaching and learning. However, at the Colleges of Education level, there is little or no visible attempt being made. Based on this, the researcher developed, validated and used the Students' Evaluation of Teaching Effectiveness Scale in Colleges of Education (SETES-CE) to measure specific and observable classroom behaviours that are indicative of teaching effectiveness in Colleges of Education.

1.7 Research Questions.

(1). (i) How many reliable and interpretable components of SETES-CE are there among the variables?

(ii) If reliable components are identified, how can they be meaningfully interpreted?

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

(i) the identified sub scale of Students' Evaluation of Teaching Effectiveness Scale (SETES-CE)?

(ii) the entire Students' Evaluation of Teaching Effectiveness Scale (SETES-CE)?

(3) What is the pattern of students' evaluation of teaching effectiveness of the different rank of lecturers?

(4) What is the pattern of teaching effectiveness of lecturers in Colleges of Education as assessed by the students of different schools?

(5) Is there any difference in the evaluation of teaching effectiveness of lecturers by students from the different schools?

(6) Is there any difference in the evaluation of teaching effectiveness by male and female students?

(7) Do students'

(i) course of study;
(ii) age and
(iii) year of study.

influence their evaluation of teaching effectiveness?

(8) Would students' evaluation of teaching effectiveness vary across lecturers'
(i) rank;
(ii) age;
(iii) year of experience;
(iv) gender?

1.8 Scope of the Study

The present study was interested in finding out the students' evaluation of teaching effectiveness in Colleges of Education in Nigeria. The study was restricted to Colleges of Education from the Southwest zone in Nigeria.

1.9 Significance of the Study

This study provides additional empirical basis for assessing teaching effectiveness in higher institutions and most especially in Colleges of Education. It can help lecturers to establish the nature of the relationship between them and their students and how students perceive the teaching of their lecturers. The results of this study reveal the inadequacies of the lecturers and the need for them to improve on the quality of their instructions. It can assist the students, lecturers, management of the colleges, government and the public at large to understand their contributions towards enhancing teaching effectiveness. Moreover, this study can assist the stakeholders involved in the management of the colleges to identify the factors influencing teaching effectiveness from the students' perspective. This effort could catalyze students'

assessment of lecturers' teaching effectiveness in Colleges of Education. Furthermore, the validated instrument can be adopted or adapted for use in Colleges of Education and in other higher institutions in Nigeria. Finally, it has expanded the literature base on teaching effectiveness.

1.10 Conceptual Definition of Terms

Construct Validity: This is the degree to which the teaching effectiveness of a lecturer can be accounted for by the explanatory trait identified by students in their evaluation.

Factors: This is the unobserved variables that are assumed to underline distinct group of traits/behaviour identified in effective lecturers by students.

Students' Evaluation: This refers to the process of gathering data through students' rating of their lecturers to judge the effectiveness of their teaching.

Teaching Effectiveness: This is all the activities of the teacher that enable him/her to combine his/her professionalism in terms of knowledge, skills and competencies acquired, in order to implement sound educational programmes as well as adhere to prescribed procedures and routines in the classroom.

Reliability: This is the degree of consistency between two sets of scores or observations obtained with Students' Evaluation of Teaching Effectiveness Scale.

Validation: This refers to the process of investigating the extent to which Students' Evaluation of Teaching Effectiveness Scale measures what it is designed to measure.

Abbreviations

SETES-CE: Students' Evaluation of Teaching Effectiveness Scale.

NCCE: National Commission for Colleges of Education.

NCE: Nigeria Certificate in Education.

SET: Students' Evaluation of Teaching.

CoE: College of Education

FCE: Federal College of Education.

NERDC: Nigeria Educational Research and Development Council

CHAPTER TWO

LITERATURE REVIEW

The literature review of this study was organized on the basis of previous theoretical and empirical findings of other researchers on teaching effectiveness and evaluation of educational programmes. These will be under the following headings:

(1) Conceptual Framework

(2) Nature and scope of teaching effectiveness;

(3) Concept of teaching and teaching strategies;

(4) The trend of teacher education programme in Nigeria;

(5) The concept of evaluation and educational evaluation;

(6) Needs for evaluating teaching effectiveness;

(7) Students' evaluation of teaching effectiveness and scholastic development in Colleges of Education;

(8) Use of students' evaluation of teaching effectiveness.

(9) Validation of Instrument.

2.1 Conceptual Framework

The conceptual framework used in the study is related to the works of Wallen and Fraenkel (2001), Rae and Parker (1997),Dillman, Tortora, and Bowker (1998), Dillman and Bowker (2001), and their contribution to survey development. Wallen and Franwkel's process includes the definition of problem, identification of the target population, determination of mode of data collection, preparation of the instrument, collection of data, and analysis. Also important to their process is the identification of large categories of issues (or constructs), which can be used to suggest more specific issues within each subscale, which can then be used for generation of the items. Rae and Parker's (1997) stages of the survey research process, which emphasises the importance of the piloting or pretesting of the scale. Marie and Jean-Francois (1990) developed an instrument to measure professionalism. The first step was to form a focus group to generate items, after the administration of the instrument, descriptive statistics were calculated and all data were evaluated to determine whether each item had suffered variance to proceed with further analyses. Scores of negatively worded items were reversed, so that higher scores reflected more positive attitude.

Another framework for this study is the research carried out by Marsh, (1987), the procedures for scale development was based on seven steps which include defining of the construct to be measured, designing of the scale, generation of item pool, page layout, administration of the scale, checking of the data and analysis of the data. Schwab (1980) also worked on scale development. In his own study, only three stages were identified namely developmental stage, scale construction and reliability assessment..

In addition to the views and steps undertaken by the scholars above, Marsh (1987) based his findings on students' evaluation studies on the construct validation approach. The perspectives that underlie this approach are as follows;

- As teaching effectiveness is multifaceted, the design of instruments to measure students' evaluation and the design of research to study the validation should reflect this multidimensionality.

- There is no single criterion of effective teaching, hence, a construct approach to the validation of students ratings is required in which the rating are shown to be related to variety of other indicators of effective teaching. No single study, no single criterion, and no single paradigm can demonstrate or refute the validity of students' evaluation.

- Different dimensions or factors of students' evaluation will correlate more highly with different indicators of effective teaching. The construct validity of interpretation based upon the rating factor requires that each factor be significantly correlated with criteria to which it is most logically and theoretically related and less correlated with other variables. In general, students' ratings should not be summarized by response to a single item or an un-weighted average response to many items.

- An external influence in order to constitute a bias to students' rating must be substantially related to the rating and relatively unrelated to other indicators of effective teaching.

(Marsh, 1987, p.253)

2.2. Nature and Scope of Teaching Effectiveness

Teaching is a multidimensional process comprising a number of separable dimensions or instructor attributes, which sometimes are difficult to evaluate in a quantitative way (Arreola, 1995; Centra, 1993; Boex, 2000). An instructor's overall teaching effectiveness, which is, an aspect of teaching, is influenced by a combination of teacher characteristics such as gender, year of experience, age etc. However Abrami (1989) recognized that the nature of effective teaching could vary across instructors, courses, students and settings. He, therefore, recommends the use of global evaluation tools which will be generally acceptable by various education stakeholders for summative judgements of teaching effectiveness.

Students who are assigned to one ineffective teacher after another have significantly lower achievement (that is, gains in achievement) than those who are assigned to a sequence of several highly effective teachers (Sanders and Rivers, 1996). Thus, the impact of teacher effectiveness (or ineffectiveness) seems to be additive and cumulative. However, Orji, (2004) stated that effective teaching is a reflection of the degree to which the teacher is able to demonstrate effectively his teaching strategy which results in students' understanding of the instructional content. In the twentieth century, there were few studies of students' evaluation before the 1920, but students' evaluation programme was introduced at Harvard, the University of Washington, Purdue University, and the University of Texas and other Institutions in the mid-1920s. Barr, (1948) noted 138 studies of teaching efficiency written between 1905 and 1948, and De-wolf (1974) summarized 220 studies of students' evaluation of teaching effectiveness that were written between 1908 and 1974. The term, 'students' evaluations of teacher performance' was first introduced in the ERIC system in 1976; between 1976 and 1984, there were 1,550 published and unpublished studies under the heading and approximately half of those have appeared since 1980.

Studies by Husband (1996) show that students as consumers of instruction, are not only best qualified to judge the product being offered but will do so accurately under appropriate conditions. Other proponents of students' evaluation of their lecturers have stressed that such a practice, while providing a source of diagnosis of lecturers' teaching, may also among other things reveal the criteria used by students in their ratings of teachers (Constine, 1997); provide a measure of teaching effectiveness to be used in promoting decision and constitute a source of information for students to be used in selecting subjects and teachers (Wilson, 1996). The studies

on students' rating by Stringer and Finlay (1993) revealed that teachers who received feedback concerning their course ratings by students show greater gains in subsequent feedback. Also, Cashin(2002), and Onocha(1995,1996) provided more research support as to the benefits of students' feedback on instructional performance.

Effective teaching is the achievement of the goals which the teacher sets for him/herself or which have been set for him/her by others (e.g. Ministries of education, legislators, college management, and other government officials). As a consequence, those who study and attempt to improve teacher effectiveness must take cognizance of the goals imposed on teachers or the goals that teachers establish for themselves, or both. A corollary of this is that effective lecturer must possess the knowledge and skills needed to attain the goals. In Medley's (1982) terms, the possession of knowledge and skills falls under the heading of "teacher competence". In contrast, the use of knowledge and skills in the classrooms is referred to as 'teacher performance". Thus, those who investigate and attempt to understand teacher effectiveness must be able to link teacher competence and teacher performance with the accomplishment of teacher goals.

Students' evaluation of teaching effectiveness seems to be a 20th century concept; and research on it had been most intensive in the 1970s (Doyle, 1983). It was in 1927 that M.A. Remmers (the father of students' evaluation of teaching effectiveness) initiated the first systematic research in the field. Between 1927 to date, the thousands of research reports in this area have produced important insights into evaluation of teaching effectiveness. Onocha (1997) suggested that evaluation constitutes a source of information for:

(i) diagnostic feedback to teachers about the effectiveness of their teaching;

(ii) measuring teaching effectiveness to be used in administrative decision making;

(iii) students who select courses and teachers;

(iv) measuring quality of the course to be used in course improvement and curriculum development; and

(v) describing further research on teaching.

In spite of these, student evaluation of teaching effectiveness is riddled with conceptual and methodological issues (Onocha, 1995; 1997). For instance, how to define (operationally) and promote teaching effectiveness is still a problem for educators and researchers. There is also the problem of instrumentation (nature of instrument, reliability and validity). However, research activities (Marsh, 1987; Watkins, 1994; Onocha, 1995; have suggested solutions to the problems;

these include: the use of multiple indicators of effective teaching which suggests a construct validation approach and the application of long term stability and generalizability theory.

Evaluation of teaching effectiveness at higher level of education has used information from (i) self reports (ii) colleagues (iii) experts / trained raters and students (Cody, 2000). Self-rating has been discovered to suffer from inflation and exaggeration in comparison with other approaches (Campbell and Lee, 1988). These are considered to have potential adverse effect on the value of self-rating on the part of colleague and expert raters. It was initially proposed as a means of overcoming the limitation of self-rating. However, they have their own problems. Practically, raters are not likely to be as familiar with lecturers' teaching as students; consequently, sampling bias could occur (Scriven, 1987). Besides, the appraisal is based on limited observation of teaching performance and this cannot assure the representativeness of lecturers' performance over the length of a course. To overcome these problems associated with validity, students' evaluation of lecturers was proposed (Stringer and Finlay, 1993). Students' evaluation of lecturers are utilized by an increasing number of institutions especially in the developed world in that they provide accurate index of instructional quality.

One of the major reasons why researches on students' evaluation appear controversial in educational circles is that such students' characteristics as gender influence which could be significant are often neglected, thereby raising validity question (Rogger, 1983). However, a number of works have recorded the influence of students' gender on their ratings of lecturers. For instance, Krah and Bowlby (1997) investigated the possible influence of gender on students' evaluation of teaching effectiveness of lecturers in the University of Alberta. They made use of 1,453 undergraduates. Findings indicated that students' gender influences their pattern of rating. In the same vein, Chang (1997) undertook a study which examined the effect of gender on students' rating of teacher performance in a Taiwanese College. A total of 9,843 students were asked to rate their lecturers. Instruments used were evaluation forms containing 13 questions that focused on four dimensions of teacher performance such as preparation/planning, material/ content, method/skill and assignment/examination. Results indicated that male students rated male lecturers higher than the female counterparts.

Another study carried out by Boggs and Wiseman (1995) examines the role of gender in university students' evaluation of lecturers. Data from two hundred and twenty students were analysed using appropriate statistics. Results showed the possible presence of subtle gender

biases in the overall students' evaluation. In a similar manner, Tatro (1995) identified gender differences in college students' rating of their lecturers. Specifically, female lecturers were found to have received higher ratings than their male counterparts. On the part of students, it was found that female students gave higher rating than their male colleagues who appear to be conservative with their marks.

Amin (1994) compared the evaluation of 1,064 male and female undergraduates in the University of Yaoundé (Cameroon). Their lecturers' effectiveness was the focus of evaluation. Similar findings were recorded by Lueck (1993) when he discovered that male students rated male instructors higher than female instructors while female students rated female instructors higher than the males. Could this be the case of gender coloration among student raters? In essence, there was significant interaction between gender and students' rating of their lecturers. Another study by Feldman (1993) investigated College students' evaluation of their male and female teachers. Results revealed that gender interaction within the study was significant. Similar findings were recorded by the Vanoo Stendorp (1999) study which revealed that females were rated higher than the males by female raters while the male students rated male lecturers higher than the female lecturers.

Swaffiels (1996) investigated the possible effect of gender on students' evaluation of University professors. Findings indicated that the male professors received higher ratings than their female colleagues. Reasons that were adduced for this trend was that the male professors could have stepped out of their traditional and stereo-typical role to become sensitive to students' need, indicating a shift in classroom behaviour. In the same vein, Boggs (1995) opines that evidences abound to show that students' evaluation of their lecturers' effectiveness is subject to a number of biases, including gender. She however attributed the cause to communication problem and went ahead to provide insight into the process through which communication contributes to gender bias in students' rating. Martins and Smith (1990) corroborated this opinion when they conducted a study which examined the impact of gender on students' perception of teachers' ability to teach.

Students' prior experience in teaching has been found to influence student evaluation (Dunkins, 1990; Bare and Hill, 1992; Needle, 1991; Johnson, 1992; Jonas, 1994; Anderson and Friedberg, 1995). In a study conducted by Central (2000), one thousand one hundred and seventy

four (1,174) student teachers were examined in relation to their past teaching experience which was classified into various groups of 0-9 years, 10-15years and over 15 years. The students were asked to rate the teaching effectiveness of their lecturers at Indiana University. Analysis of variance was carried out on the data with result indicating that students with different quantum of teaching experience rated teaching effectiveness differently.

Dunkin's (1990) findings buttressed the above study. He conducted a study in which graduate students with varying teaching experience were required to evaluate the teaching effectiveness of 55 lecturers. Relationship between perceived competence on teaching tasks, and some professional background variables were sought. Results showed that teaching experience had indirect effects on students' evaluation. In other words, teaching experience affected students' evaluation. Findings from similar study conducted by Anderson and Freidberg (1995) supported the preceding findings.

Another study by Needels ((1991) examined the video tape of a first grade teacher in action. Students with teaching experience and others with none were required to assess the teaching competence of first grade teacher based on the following parameters: classroom management, teacher-student interaction and use of student knowledge. Findings indicated few differences between the ratings of students with teaching experience. Experienced teachers better understood the interconnection of classroom events.

In his own study, Jonas (1994) studied the effects of pre-service teachers' experience on students' evaluation. Four pre-service teachers with varying experiences were required to evaluate the lessons of their lecturers. The lessons were videotaped so that the teachers' reactions to the question could be critically assessed according to a 10 point scale. Results showed significant differences in evaluation due to prior teaching experiences. These findings corroborated earlier views. Bare and Hill (1992) conducted a study which investigated the role of teaching experience on students' assessment. The study which spanned for 3 years specifically sought to find out from student perspective how their past teaching experiences had affected their ratings of lecturers. Results showed that students testified that the experimental exposure had helped in their various ratings of teaching effectiveness especially in their manner of perception.

Research work carried out by Stringer and Irwing (1998) appears to confirm students' courses as very influential on students' rating/perception of teaching effectiveness. They made use of a total of 1,708 fulltime undergraduate students undertaking degrees in Health and social

science courses at the University of Ulster. Results indicated that perceived teaching quality was found to be related to course which explained about 42% of the trend in results. Another study by Freedman (1994) investigated the effect of course on students' evaluation of instructional effectiveness. Result of the experimental study which involved 305 college students showed that the students' ratings depended on different courses which they were undertaking.

Researchers over the years have shown that students in different departments, schools and faculties perceive teaching and learning in different ways (Bassow, 1995). Kaufman (2002) specifically carried out a study whose main concern was finding the extent to which different groups of students undertaking different courses differed in their ratings and perception of teaching effectiveness of their lecturers. He made use of 925 students spread across faculties and departments in a University in Connecticut. The findings revealed that their different faculties/courses influenced their ratings and perception of lecturers. The author posited some reason of which arose from several source including diverse experience, exposure and different nature of courses. For instance according to Orji (2004), the qualities of a good lecturer as perceived by faculty of education students were different from those of faculty of law and engineering/science. In the same vein, Veldman and Peck (1998) found that students' rating of teachers varied as a function of the subject areas.

Marsh and Bailey (1993) experimented with 123 instructors who were rated by over 3000 students undergoing degree programmes in different courses. Findings showed that ratings of the students were found to have been influenced by different courses. In other words, significant differences in students' ratings as a result of type of courses were recorded. Similar findings were reported by Zahn and Schramm (1992) whose study looked at 10,270 students' evaluation of their teachers in skill and non skill oriented courses. Results indicated that teachers of non skill oriented courses received higher ratings than other courses.

In another study conducted at College of Applied Science and Technology, Money (1992) investigated the perception of 138 students spanned across faculties of nursing and technology. The study identified 7 factors contributing to teaching effectiveness. Based on the factors, a questionnaire was constructed, requiring students to rank and rate their lecturers. Results revealed that no significant difference was found in the ranking and rating of students from different faculties. The reasons for this result as suggested by the author might have been due to similarity in the nature of the two disciplines, which are science based. Lending credence to this

findings, Hale, Harried and Waugh (1996) tested the efficacy of the Students' Rating of Teaching Effectiveness (SRTE) instrument, which they administered on college students who were asked to rate the teaching effectiveness of their teachers. The SRTE was a 22 item instrument based on students' perspective. Findings showed no significant difference in the rating, as students' differentiation among teaching components appeared obscure.

On the contrary, Batten (1993) reported related study which was aimed at identifying students' best teachers. Students comprised equal representatives from humanities, science and mathematics. They rated their various course lecturers in order to identify the best lecturers. Ratings indicated differences across the selected disciplines/subject areas. Best lecturers in science and mathematics received lower scores than the best ones in the field of humanities. This implies that the ratings varied according to the subject area.

Morell and Souviney (1990) assessed the teaching effectiveness of lecturers at the University of California, using students' evaluation as the assessment tool. The study used data from students' evaluations conducted for over 3 years in different courses/subject areas. The overall result showed that students tended to rate humanities and fine art courses lecturers with higher scores than science mathematics or engineering lecturers. The findings have further confirmed students' courses as a very significant influencing factor on students' evaluation.

Apart from students' courses, the year of study on student's level in any particular course may influence students' evaluation of teaching. Although, paucity of literature exists on the effect of students' year of study on students' rating of teaching effectiveness, few studies have however been documented. For instance, Stringer and Irwing (1998) conducted a study which sought to find out the effect of year of study on students' evaluation of lecturers. A total of 1708 students comprising first year, second year, third year and fourth year students who were undertaking undergraduate degree courses in health science served as sample for the study. It was revealed that students' rating varied across students' year of study. The final year students were found to be more objective in rating than other categories of students. A similar study was carried out by Stanton (1994) in which 40 classes (comprising different years of study) were used. Each class was given a diagnostic rating scale to facilitate the assessment of their lectures' effectiveness in teaching. Findings revealed that the ratings varied across the different levels of students.

James (1998) constructed and validated an instrument called Students' Observation of Teachers and Teaching Techniques (STOTT), using 925 high school students who were in different classes. The students were required to rate their lecturers, using STOTT instrument. Results showed that their ratings varied according to the class or level. Also, Goldberg and Callanhan (1991) experimented with over 4,000 Business students who were required to assess 60 lecturers. The raters were categorized into different classes/years of study. Findings revealed that students' rating of business studies lecturers were influenced by course level/class.

A study by Farah and Highly (1995) used different levels of undergraduate and graduate students to assess teaching effectiveness. Results indicated differences in ratings due to year of study. On the other hand, Schuman (1993) executed a study which evaluated an instrument used for rating teachers in the pediatrics unit of University of Wisconsin. Medical school measurement of overall teaching effectiveness was done by medical students in different classes/levels, reflecting different instructional settings. Results indicated no significant difference in rating as all responses indicated comparable scores on measures of teaching effectiveness.

2.3. Concept of Teaching and Teaching Strategies/Techniques

Teaching is a polymorphous concept. At one level, it means the work which everybody does so long as they spend part of their lives in influencing the thoughts, feelings and behaviour of others (Morrison and Melntyre, 1973). At another level, it is the organized work people engage in for a living. In this regard, teaching is seen as a profession. At another level still, teaching has been used to refer to the body of doctrines perpetuated by a distinguished figure in society, for example, the teaching of Jesus. Yet at another level, teaching is used in connection with institutionalized efforts made by one person to help another to learn. It is this last concept of teaching that the rest of this review will focus on.

Van Dalen and Brittell (1959) defined teaching as the guidance of pupils through planned activities so that they may acquire the possible richest learning from their experiences, adding that learning is the result of experience and requires the active participation of the child. The definition of teaching implies that the teacher does not give the learner education, for learning is a process that comes from within the pupil. But to put the pupil in this situation, the

teacher has the onerous task of arousing the interest of the pupil so that he (the pupil) becomes ready to participate actively in the teaching-learning process. The teacher could achieve this by establishing attainable goals, by giving pupils both stimulus and opportunity to ask questions and obtain information, by analyzing their problems and proposing solutions, by practicing skills, by making judgments and by evaluating progress. The pupils must learn by themselves but the teacher comes in to point out obstacles which the pupils may be experiencing, answering their questions, helping to analyse difficulties, and providing encouragement in the activity being undertaken.

Clark and Starr (1967) on their part see teaching as an attempt to help someone acquire or change some skill, attitude, knowledge, idea or appreciation. In other words, the teacher's task is that of creating or influencing desirable changes in behaviour, or in tendencies towards behaviour, in his pupils. The implications of this definition is that teaching is a helping relationship which involves the teacher (usually a more mature and more experienced person) helping the student (a less mature and less experienced person), to acquire knowledge, skills or value, and hence, learn. Thus, it is helping the learner to learn to do or to be.

In another vein, Olaitan and Agusiobo (1991) hold that teaching is an attempt to bring about desirable changes in human abilities and behaviours. This means that teaching is to cause the learners to make certain desirable changes in their behaviour patterns which involve classroom chatting between teacher and pupils within certain defined activities. Teaching then implies and involves not only a change in behaviour but a means of sharing and communicating that result in the growth and development of a pupil in terms of knowledge, skill and attitude. It is apparently against the background of the foregoing that Nweke (1990) posits that teaching implies helping people to gain the knowledge and attitude which make them responsible citizens, earn a living and lead a meaningful and rewarding life. Odor (1990) throws further light on the concept of teaching by submitting that teaching is the process of guiding, stimulating, motivating and evaluating the learner in an organized educational institution through a well planned and selected educational programme of instruction towards the achievement of the desired goals, including the all-round development of the learner. Here, the teacher is seen as a person of many parts: a guide, stimulator or motivator, and evaluator, among others.

The idea suggested by Ezewu (1983) stated that teaching can be likened to selling. No trader can boast that he/she has sold so much goods when nobody bought anything from him/her.

Consequently, an effective teaching is one that results in the pupils learning maximally what is taught them. To be able to do this, the teacher must identify the needs of his/her pupils and then prepare the materials or learning experiences that best match their needs. Therefore, the preparation, the strategies and the medium through which the learning experiences are communicated must also be compatible with the needs of the learners. It is in this regard that one can say that teaching is effective.

How do we then know that teaching is effective even after proper preparation and delivering of the lessons have been done? We know this through the process of assessment and evaluation. This is the method of knowing whether or not the learners have learnt what they were expected to learn from the lesson and the extent they have learnt. If, for instance, after a particular lesson, only 30% of the class is shown to have mastered the objectives of the lesson taught, this lesson cannot be said to be effective. But, if, for instance, about 70% or more of the class mastered the objectives, nobody will dispute the fact that the lesson was effective. Therefore, it can be postulated that all things being equal, an effective lesson preparation leads to an effective lesson delivery, and an effective lesson delivery leads to an effective mastery of lesson objectives.

The objective of teaching is to help students develop their potentials on their own journey to adulthood so that they can become good, productive, and useful citizens to their nation. Thus, the future of the students depends on the good work of effective teachers. At this point, we need to clarify what we mean by effectiveness. The dictionary definitions of effectiveness are generally in terms of the extent to which something achieves its purpose; effectiveness is about doing the right things. It should not be confused with efficiency, which is about doing things right. Efficiency is important as an issue, but effectiveness is vital. By observing an effective teacher, it is possible to come up with a list of coherent set of actions that a teacher performs. The classification of related set of activities forms the components of teaching. Three major components of teaching identified were preparations, execution and evaluation of teaching events.

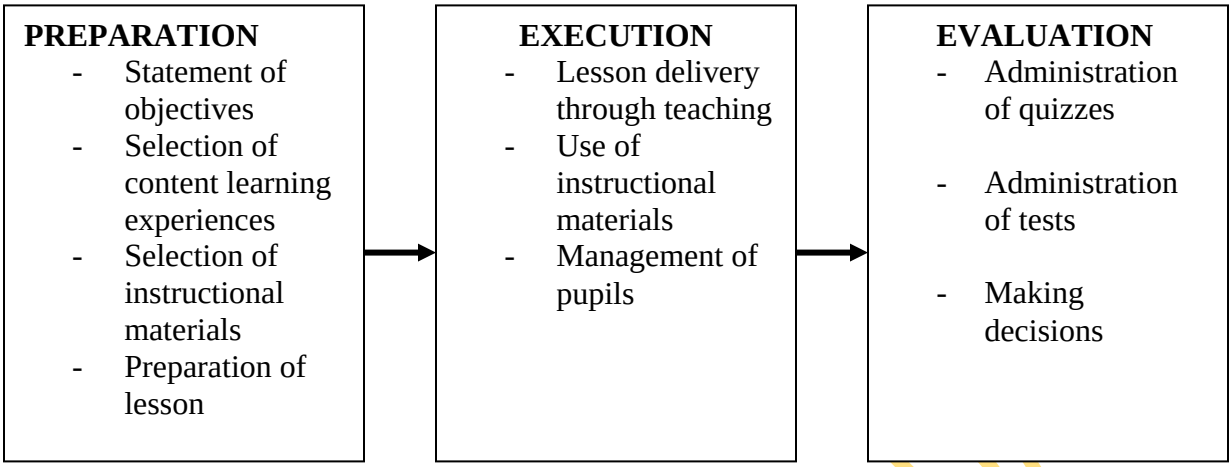

Fig 2.1: Component of Teaching.

At the preparation stage, the teacher plans the lesson he/she intends to teach. It includes all the activities of the teacher that lead to putting the lesson together, i.e. objectives, appropriate subject matter, logical sequencing of the subject matter in a manner that the learner can follow, teaching aids, etc. The end result of this stage is the note of lesson.

The execution stage is where the teacher communicates the lesson to the students. He/she follows the plans as put down in the lesson notes in implementing the teaching methods/strategies. The classroom management, which is a part of execution and evaluation, entails classroom controls and hygiene. Arrangement of seats, grouping of students, classroom disciplines, cleanliness, etc., are all under this category.

Evaluation deals with ascertaining that the lesson is effective, i.e. that the students have learned; and that the teaching method/strategies were effective for the particular class that was taught. Thus, effective teaching is the teacher doing the right things in the teaching process so that at the end of the teaching events, he or she can truly say the goals and objectives of the lesson(s) have been achieved, i.e., the students for whom the lesson was planned have actually learnt.

The aim of an effective teaching technique is for the teacher to understand and interpret the goals and objectives of the school curriculum correctly and from it arrange teaching events that will lead the students to achieve these goals and objectives. This can be done by providing a wide variety of learning experiences through the use of various teaching methods and techniques

at his or her command that are appropriate for the students and subject matter, and by the nurturing of creative responses in the students.

Teaching can also be seen as helping pupils to acquire the problem-solving skill and the ability to think for themselves. It is helping them to learn how to learn (Rogers, 1983), so that they do not only know how and where to obtain needed information, but to develop the habit of inquiring and so on, and thus prepare them more adequately for the process of life-long education. That way, teaching helps pupils to acquire the ability to benefit from the numerous opportunities for self improvement which exists in their environment. Furthermore, according to Akinpelu (1981), teaching is a systematic activity deliberately engaged in by somebody to facilitate the learning of the intended worthwhile knowledge, skills and values by another person, and getting the necessary feedback. This viewpoint on teaching seems to have the following implication:

(i) teaching is a systematic activity; \

(ii) (ii) teaching involves somebody making it possible for someone else to learn something,

(iii) teaching is objective based: and

(iv) teaching involves the continuous assessment of pupils' progress.

Rogers (1983) introduces another dimension to the discussion on the meaning of teaching when he stated that teaching is, "permitting the student to learn, to feed his or her curiosity". He added that, "merely to absorb facts is of only slight value in the present, and usually of even less value in the future". He concluded that "learning how to learn is the element that is always of value, at present and most importantly in the future". Rogers' conception of teaching is intended to create classroom environments conducive to self- initiated learning. Another way of looking at teaching is as a process of getting a learner to become really educated, which according to Obanya (1980), means the harmonious all-round development of the individual by adequately cultivating the three H's – that is, the Head, the Heart and the Hands.

It would appear that the concept, 'teaching' cannot be divorced from the performance of activities. Pinset (1962), views teaching as a complex process of co-operation and inter-communication between teacher and learner, not a one-way traffic in information from teacher to learner. Romiszowski (1984) agrees with Pinset (1962) on this score. Teaching would therefore

essentially consist of setting the stage to enable someone to learn. It would involve creating or providing experiences from which learners will acquire knowledge, skills, attitudes and appreciation that will serve as tools in life.

2.5. The Trend of Teacher Education Programme in Nigeria

Teacher Education refers to professional education of teachers towards attainment of attitudes, skills and knowledge considered desirable so as to make them efficient and effective in their work in accordance with the need of a society at any point in time (Ibidapo – Obe, 2007). Teacher education was part of Western education which was introduced in the 1840s. The development of teacher training colleges in Nigeria started in the second half of the 19th century, particularly as from the 1850s. Taiwo (1980) notes that the first teacher training college, known as "The Training Institution" was established by the Church Missionary Society (CMS) in Abeokuta in 1853, This school was later moved to Lagos in 1867, following the expulsion of the European missionaries from Abeokuta as a result of the "ifole" crisis. It was later moved to Oyo where it became St. Andrew's College, Oyo in 1896.

The Wesleyan Methodist and Missionary Church Society opened an institution in Ibadan in 1905 to train Catechists and teachers. This school opened with only four candidates. However, by 1918, enrolment in the college had risen to twenty and the institution became known as Wesley College Ibadan. By 1925 fourteen institutions had been established in the country. An important event in the 1920s which affected education generally and teacher education in particular was the Phelps- Stokes Report. The recommendations guided the colonial administration under Mr. E .R .S Hussey to re-organize and re-orientate the educational system in the country. As a result of the recommendations of the Phelps-Stokes Reports and of the Colonial Advisory Committee\ on Native Education, training institutions were introduced.

By 1948, these two systems became popular in the old western region and even beyond this period. The number of Teacher Training Colleges in Nigeria had by 1948 risen to fifty- three with student population of more than three thousand (Taiwo, 1980). Although the Colonial administration did not open a government teacher training college until 1929, it gave grants to voluntary agencies to continue their educational works to the rapid expansion of teacher education not only in the old Western Region but in the country generally. The early form of teacher education focused mainly on the training of teachers who operated at the primary level of education. Before independence, there were very few secondary school teachers. The available

few were expatriates and missionaries, most of whom had no teacher education preparation. There were also a few products of the secondary schools that were retained to teach as auxiliary teachers but needed higher skill that could be available only in a university or an advanced teachers' college.

The importance of teachers and the roles they play in the educative process are central to basic education, particularly in third world countries. In more advanced countries, there may be close subtitles for teachers' roles in the form of teaching machines with programmed instruction (Balogun, 1988), but in developing countries such as Nigeria, teachers undoubtedly remain the managers of knowledge. In other words, teacher education in Nigeria is, and should be, the foundation of quality and relevance of education at all levels. Indeed, the National Policy on Education (Revised 2004) clearly endorses the fact that "no education system can rise above the quality of its teachers". The expectation is very critical, not only to the effectiveness of teaching, but equally to the survival of the various disciplines in the curriculum of education.

The National Policy on education in the section on teacher education provides that all teachers in educational institution from pre – primary to tertiary, shall be professionally trained as teachers. In practice, however, teaching has remained an all- comers trade and real professionalization is yet to be fully attained. The situation is more distressing at the tertiary education level where the practitioners prefer not to be classified as teachers but as lecturers. A preponderance of the lecturers in the universities, polytechnics and Colleges of Education are therefore not professionally trained to function as teachers. In Colleges of Education for example professional qualification in education is an imperative criterion for the recruitment of teacher – educators. Therefore in the production of effective teachers, the teaching quality of those that were involved as lecturer needs to be evaluated so as to infuse standard in the products.

Afemikhe (1995) concluded that:

> *Good teachers would beget good students from which the system can get a replenishment of its teaching stock. In the same token, poor teachers will beget poor students and consequently poorer future teachers*.

This quotation points to the fact that quality of teachers determines the effectiveness of teaching and worth of students. Teacher education is expected to produce teachers with appropriate skills, knowledge and affective dispositions as demanded by the educational system. Asron (2003) identified some specific areas of teacher education that need improvement. These

areas include teachers' communication skill, teaching of numeracy and basic sciences, use of instructional time, promotion of active learning, assessment techniques and teacher teamwork. Even though there are still signs of no commitment to teaching and many teachers would want to leave the profession at the slightest opportunity, it is heart-warming to note that a larger proportion of the current day teachers are professionally trained.

The country became independent on 1st of October, 1960. This brought a new development in the field of education that caters for the numerous need of the citizen. This lead to the setting up of various committee to find a lasting solution to educational problem. Ashby Report of 1960 which was set up for post – school certificate and Higher Education, Advanced Teacher Training Colleges (Now Colleges of Education) were established as from 1962, to produce well – qualified non – graduate teachers to teach lower classes within secondary schools. The University of Nigeria, Nsukka (UNN) had earlier in 1960 started an experimental B.A and B. Sc. Degrees in Education which attracted severe criticism. However, Mkpar (2002) stated that the trial that UNN blazed yielded good result because at present there are about 53 federal and state universities having faculties of education, and 62 Colleges of Education and polytechnics. In all these institutions, B.A/ B.Sc degrees in Education are offered.

In order to maintain high standard in teacher education, the National Commission for Colleges of Education (NCCE) was established in 1989 with power among other functions to:

i. co-ordinate all aspects of sub-degree teacher education;
ii. lay down minimum standard for all programme of teacher education and accredit their certificate and other academic awards;
ii. approve guidelines setting out criteria for accreditation of all Colleges of Education in Nigeria;
iii. lay down standards to be attained and continually review such standards (Decree 1 of 1989).

The National Policy on Education (2004) further stipulated that teacher education should recognize the need for changes in methodology and curriculum and teachers should be exposed to innovations in their profession. The type of teachers needed in Nigeria had become clearly defined in the National Policy on Education. This prescription implies that the minimum qualification to teach in our primary schools in Nigeria is NCE and both junior and senior secondary schools also require NCE qualifications.

2.4.1 Characteristics of an Effective Teacher

Quite a number of attempts have been made to identify the attributes and skills of an effective teacher. According to Dillman and Browker (2001), effective teachers have in common the following characteristics:

1. **Devotion to their Profession:** Fortunately, although most of us do not realize it, teaching is a task that has the potential value of creating a better society through making desirable changes in individuals. The effective teacher has a positive attitude towards professional help.

2. **Competence in teaching subject:** Though obvious, this aspect of a teacher's job is not always emphasized in faculties of education. It is taken for granted that the teaching subject faculties are responsible for imparting the knowledge. An effective teacher knows the subject in and out, not just what is to be covered as shown in the syllabus. A teacher's knowledge of the teaching subject should not be less than that of a non- education graduate of the same field. It is only then that a teacher can open the doors of the field in an interesting and exciting manner to students.

3. **Willing to add to knowledge base:** Education is not static; new knowledge, ideas and insight of application of this knowledge emerge daily. A teacher who does not update his/her knowledge regularly soon becomes stale and outdated. Effective teachers always find the slightest opportunity to update their knowledge and skills. The effective teacher is a practical scholar, a student of the academic discipline.

4. **Flexible and open-minded:** Effective teachers are not fixed and limited in their ways. They are open-minded to receiving new ideas. They can see things from several angles, thus approach a topic from several viewpoints. They have creative minds.

5. **Facilitate learning in students:** Effective teachers do not show off what they know; rather help the students to learn.

6. **Control students in constructive activities:** The students know who the teacher in charge of the classroom is –. Yet, the effective teacher is not overbearing. He has affirmative personality, good humour, and encourages students by example.

7. Take initiative, and has generally well organized plans which are often well presented.

8. Active in the community, initiate parent contacts, and co-operate with parents.

9. **Faces reality in an objective way:** The effective teacher does not allow his/her emotions to cloud his/her judgment. He/she finds a way of ascertaining facts. When teachers have problems of their own, i.e emotional conflicts, fears, fixations, etc., they know that these may show themselves in their behaviour towards the students. The effective teacher seeks help and tries to free himself/herself from such emotional problems.

10. **Inspires confidence:** An effective teacher takes pride in what he/she does. He/she attacks new problems with zest; he/she is convincing. His/her voice inspires confidence and his/her mental and physical energy is at a higher level than average.

These characteristics can be categorized into three areas: Personal qualities, knowledge, and skills. These three areas are illustrated in figure 2.2. Brophy and Good (1986) depict an effective teacher as one who is well organized, efficient, task-oriented and businesslike in the classroom. From data collected, they saw the effective teacher as one who lectures, demonstrates, and his/her students receive feedback on their practices

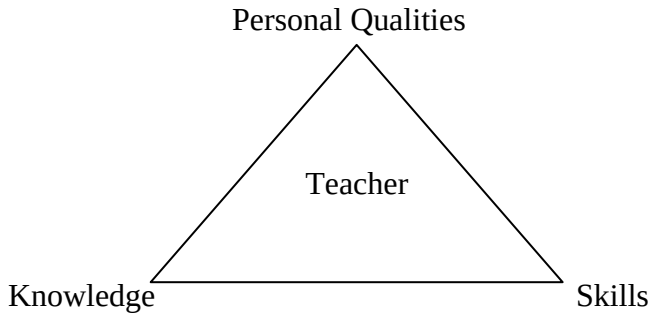

Fig 2.2: Trademarks of a teacher (After Anderson, 1989)

Clark and Peterson (1986 painted a portrait of an effective teacher thus:

> *…thinking plays an important part in teaching and the image of a teacher a reflective professional… is not far-fetched. Teachers do plan in a rich variety of ways, and these plans have real consequences in the classroom. Teachers do have thoughts and make decisions frequently – during interactive teaching. Teachers do have theories and belief systems that influence their Perceptions, plans and actions…*

The emerging picture of the teacher as a professional is a developmental one that begins during undergraduate teacher education; and continues to grow and changes with professional experience. The education majors who would become professionals are firmly grounded in the disciplines and subject matters that they will teach. Their study of subject matter focuses on both content and on the cognitive organization in ways useful to themselves and their future students. They had both supervised practice in using the behavioural skills and strategies of teaching and have also been initiated into the less visible aspects of teaching including the full variety of types of planning and interactive decision making.

The maturing professional teacher is one who has taken some steps towards making explicit his or her implicit theories and beliefs about learners, curriculum, subject matter, and the teacher's role. This teacher has developed a style of planning for instruction that includes several interrelated types of planning and that has become more streamlined and automatic with experience. Much of this teacher's interactive teaching consists of routines familiar to the students, thus decreasing the collective information-processing load. During teaching, the teacher attends to and intently processes academic and non-academic events and cues. These

experienced teachers have developed the confidence to depart from a planned course of action when they judge that to be appropriate. They reflect on and analyse the apparent effects of their own teaching and apply the results of these reflections to their future plans and actions.

2.5. The Concept of Evaluation and Educational Evaluation

The word, 'evaluation was coined from the Latin word, "valeo" meaning to value" or "to assess the worth of a thing". Evaluation is a vital part of the decision making process used in every aspect of our daily life. Judging of the merit and worth of employees by their employers in order to decide who gets promoted, gets a pay rise, or gets fired is a form of evaluation. A business woman evaluates when she balances her account after each day to see whether she has made a profit or incurred a loss. In education, we evaluate teachers, students, administrators, facilities, service, budgets, instructional strategies, etc in order to judge the worth of any educational enterprise. This is with a view to maintaining, improving or changing any part of the educational programme. In other words, evaluation is an integral component of an instructional programme. To any institution, evaluation is as important as air is to living things. Evaluation illuminates by throwing light on the educational programme, and then giving direction about the next line of action. It also includes taking account of all phases of an institutional programme. From evaluation, modification and/or changes in practice might be advocated.

Formal evaluation has a long history, dating back to 18th century when Chinese officials administered civil service examinations. Literature revealed that the first formal educational evaluation was conducted in the United States in 1887 by Joseph Mayer Rice, a free-thinking pediatrician. Around the 1930s, another trailblazer named Ralph Tyler demonstrated a new approach to evaluation in the eight-year study of the Progressive Educational Association. Through it, the foundation was laid for the major forms of evaluation we are familiar with today. Ralph Tyler, in the 1930s, eventually conceived evaluation as the process of determining the degree to which the goals of a programme have been achieved. To him, goals and objectives have to be defined in behavioural terms for effective evaluation to be carried out. Essentially, the concept of evaluation is an integral part of the entire educational endeavour. It provides the basis for judging an educational endeavour. From the process perspective, available literature viewed evaluation as an attempt "to determine the relevance, effectiveness and impact of activities in the light of their objectives". This means that evaluation should measure the totality

of the training outcomes for future progress and modification to be made. From evaluation, changes in practices could be instituted or a continuation of existing practices might be advocated.

In another view, Dada (1999) observed that the process of systematically gathering data or information (facts, figures opinions, etc) for the purpose of assessing the worth of a programme, project, activity or situation as well as for taking further decisions is known as evaluation. However, evaluation may not necessarily imply that something wrong or defective exists in a programme. It could serve as a form of insurance that good practice will be nurtured, continued and maintained. Kolawole (1998) sees evaluation as a means of finding out whether 'the how and what' of education are being achieved. Without evaluation to determine the status of an educational programme, and the programme goals and objective, systematic and successful planning would hardly be possible.

Evaluation in education gives direction and inputs to educational efforts. It gives evidence and support to actions taken and suggests changes to be made if education and curriculum goals must be appreciably achieved. In the conception of Okpala, Onocha and Oyediji (1993) with respect to achieving educational objectives, evaluation is a process of gathering valid information on attainment of educational objectives, analyzing and fashioning information to aid judgment on the effectiveness of teaching or an educational programme. Centra (2000), sees evaluation as a process which attempts to determine as systematically and objectively as possible, the relevance, effectiveness, efficiency and impact of activities in the light of specified objectives.

Evaluation includes both quantitative and qualitative descriptions of learners' behaviour. For instance, at the end of a doctoral degree programme, a researcher is usually examined to determine the extent of his change in behaviour. The quantitative description of the researcher's performance could be in term of marks and grades on the basis of which the value judgment concerning the desirability of the performance is determined. The researcher is in this case, being evaluated. From the above definitions and explanations, evaluation is seen as a continuous stock-taking measure to determine the extent to which the objectives of educational programmes are being achieved and at what rate the resources are being utilized so as to provide information that will guide educational policy makers in current and future decisions on such educational programmes. Evaluation involves obtaining unbiased empirical research information to prove

the worth of educational programmes or activities. The generic goal of most evaluators, both in the public and private sectors, is to influence decision-making or public formulation through the provision of empirically-driven feedback. It is through evaluation that it becomes possible to determine the success or failure, stagnation or progress of education and its curriculum.

Educational evaluation is the process of delineating, obtaining and providing useful information for judging decision alternative (Guba and Stufflebeam, 1970). It is a systematic description of educational objectives and an assessment of their merit or worth. The goal of educational evaluation, in essence, is to provide data concerning a selected programme in order to facilitate educational decision making. Ojo (2004) stated that evaluation means to examine and/or judge the quality or degree of a thing. It is on the whole, decision-driven.

There are two major forms of evaluation, namely, formative and summative evaluation. These forms are in terms of when the evaluation is done. Evaluation carried out while an educational programme or curriculum is still in progress so as to determine the extent to which the objectives of the programme are being achieved is formative. This makes it possible for the data collected from the evaluation to be used in making necessary modifications and refinements in the programme. This type of evaluation provides feedback that can be used to bring about improvements in the programme or curriculum (Nwagwu, 1992). Summative evaluation focusses on the overall effectiveness of a project. The summary report provided by the summative evaluator on the effectiveness of the projects, demerits and comparison with alternative projects apart from being useful in predicting subsequent successes provides guide to policy makers on decision regarding the continuity or otherwise of the programme (Okpala, Onocha, and Oyediji, 1993).

A further extension of the concept of evaluation is that which views it primarily as an aid to decision-making. Thus, a programme or project may be regarded as consisting of a series of decision-making right from the pre-planning stage through planning, implementation and follow-up stages. At any of these stages, there are usually several alternative routes open, and decisions have to be made on which route to take. This includes decisions on priorities as well as feasibility at each stage. This model de-emphasizes the role of evaluation in the passing of judgments. While of course the evaluation may occasionally pass judgment on the values of certain entities, there will be several situations where no such simple judgment can be made by

the evaluator. The task is primarily that of showing the likely consequences of alternative routes and the decision maker chooses after considering several other factors.

2.6. The need for Evaluating Teaching Effectiveness

In any educational setting, decision needs to be taken about various aspects of teaching and learning: the students, the teachers, the curriculum and the learning outcomes. The judgment as to whether or not the goal of teaching and learning are being met, are passed after evaluating the input, process and output of education. Evaluating these aspects makes evaluation a broad exercise, which is undertaken for many purposes.

There is an inadvertent assumption that everyone knows the meaning of evaluation, whereas the concept is open to various definitions, perhaps as a result of its nebulous nature. Any definition of evaluation will depend on the perspectives from which it is viewed. Therefore it is necessary that the teaching effectiveness of lecturers of Colleges of Education have an in – depth understanding of the concept of evaluation and the purpose it serves.

There are four major assumptions of teaching effectiveness. The first is that effective teaching tends to be actively pursuing goals. These goals, in turn, guide the planning, as well as the behaviours and interactions of the lecturer with student in the lecture room. Secondly, teaching is intentional because we always teach for some purpose, primarily to facilitate learning. Teaching is reasoned because what teachers teach their students is judged by them to be worthwhile" (Anderson et al, 2001). A third assumption implicit in this definition of teaching effectiveness is that vast majority of teachers' goals are, or should be, concerned either directly or indirectly with their students' learning. It should be obvious that if teachers' goals are stated in terms of their students' learning, then, as Medley (1982) has asserted, "teacher effectiveness must be defined, as learning of students, not behaviours of teachers". In this regard, it is worth noting that the World Bank (1990) has suggested that "Countries must emphasize students' learning as the key policy objective".

A fourth assumption is that no teacher is effective in every aspect of the profession. For example, a primary school teacher may be highly successful in teaching reading comprehension to students while merely struggling to teach them the elements of rudimentary problem-solving in mathematics. Thus, the degree to which a given teacher is effective depends, to a certain extent on the goals being pursued by that teacher (Poter and Brophy, 1988). The degree to which

a teacher is effective also depends to a large extent, on the characteristics of the students being taught by the teachers.

From these assumptions about teaching effectiveness/teacher effectiveness, it is noted that more is expected from the researcher or evaluator of teaching effectiveness to really have a valued and reliable instrument for measuring effective teaching. Despite the underlying assumptions, it seems reasonable to assume that those who are referred to as being "effective teachers" are more often than not effective in achieving specified learning goals. However, this effectiveness does not stem from rigid adherence to a standard set of behaviours, activities, methods or strategies in all situations. Rather, teachers who are consistently effective are those who are able to adapt their knowledge and skills to the demands inherent in various situations so as to best achieve their goals.

School administrators are aware of the influence of teachers on students' achievement. It is also generally recognized that there is a wide variation in teacher effectiveness both within and between schools (Kane, Rockoff, & Staiger 2008; Lankford, Loeb, & Wyckoff 2002; Rivkin, Hanushek, & Kain, 2005; Rockoff, 2004). In the last two decades, the record shows few ways of quantifying the variation in teacher classroom effectiveness. Many scholars agreed that teachers are hugely important, but noticed variations in teacher effectiveness within and between schools which is based on unobservable teacher characteristics that are difficult, if not impossible, to measure. School administrators could also recognize the difference in learning outcomes, as a result of a child assigned to one teacher over another. Although, quantitatively measuring the extent of a teacher's effectiveness was a daunting challenge, luckily, the empirical revolution that has occurred in education over the past few years has led to the development of a set of tools that are capable of quantifying the extent of variation in teacher effectiveness for the first time (McCaffrey, Lockwood, Koretz, & Hamilton, 2003). One of these tools is the Students' Evaluation of Teaching Effectiveness Scale (SETES) which can be adopted or adapted by any researcher to measure teaching effectiveness of lecturers in any higher institutions of learning.

Hanushek (1992) has quantified the difference between having the "best" and the "worst" teacher for one school year using data that were generated over a 4-year period by the Gary Income Maintenance Experiment, incorporating test scores from the Iowa Reading Comprehension and Vocabulary tests. In the study, all teachers were ranked based on effectiveness measured by student test scores and the difference between being assigned to a

teacher at the twenty-fifth percentile as compared to being assigned to a teacher at the seventy-_fifth percentile in quality was calculated. It was found out that the difference is about an additional grade-level's worth of proficiency by the end of the school year. Also, studies by researchers in Tennessee (Sanders & Rivers, 1996), New Jersey (Rockoff, 2004), Chicago (Aaronson et al., 2007) and Florida (West & Chingos, 2008) have all reached similar conclusions. As implied by the consensus reached by these independent studies of the magnitude of teacher's impacts, most contemporary education researchers agreed that teachers matter (Angrist & Lavy, 2001; Jacob & Lefgren, 2004; Jepsen & Rivkin, 2002; Kane, Rockoff, & Stagier, 2006; Kane & Staiger, 2005; Rivers & Sanders, 2002; Rockoff, 2004). The biggest issue facing school leaders, researchers and others in the education community is quantifying how much a particular teacher's characteristics matters and whether it is possible to predict teacher's performance based on characteristics observed at the time of hiring, when the teacher is still very fresh and he/she is putting his/her best in the attainment of effective teaching.

Another important aspect to note is how much does teacher experience matter? It is intuitively appealing that a teacher's worst year is most likely his/her first year in the classroom, when classroom management issues are being tackled for the first time such as organizational routines are being established, curricula mapped and procedures developed. As a teacher's experience grows, however, we might expect that he/she is more likely to have figured out the most appropriate responses to a variety of classroom situations and problems, developed a strong sense of self-efficacy, that student achievement increases as a result (Tschannen-Moran & Woolfolk Hoy, 2001; Woolfolk Hoy, Hoy, & Davis, 2009). There is also a belief that experience correlates with effectiveness, however, findings modest effects of experience limited to the first few years of a teacher's career, suggests that teacher effectiveness in most cases grows in the initial four or five years in the classroom and then begins to level off. (Hanushek, et al. 2005; Kane, et al. 2006; & Rockoff, 2004)

2.6.1. Teaching Effectiveness and Students' Achievement

Teaching effectiveness is an instructor's degree of success in facilitating student learning. The more students learn, the deeper the cognitive levels at which they learn, and the better they can communicate (or perform) what they have learned, the more effective an instructor's teaching. Formative evaluation in teaching is the evaluation activities done to provide instructors

with information they can use to improve their teaching; intended for personal use rather than public inspection; information is private and confidential; information is rich in detail so teachers can obtain clear insights on nature of teaching; Formative evaluation is informal, ongoing and wide ranging while Summative evaluation in teaching is the information gathered to make personnel decisions (hiring, promotion, tenure, merit pay); information is for public inspection; not intended to provide rich and detailed data for improvement of teaching.

Although students' achievement is regarded as the purest form of assessing teacher's effectiveness, however, most investigations found little correlation between achievement and students' ratings. For example, in a well-controlled meta-analysis, Cohen (1983) found that students' achievement accounted for 14.4 percent of overall instructor rating variance. Other analyses have turned up even lower estimates of student rating validity. In a meta analysis of 14 multi-section validity studies, and, in a quantitative analysis of six validity studies chosen for their exceptional control of student presage variables, Dowell and Neal (1982) found that student achievement accounted for only 3.9 percent of between-teacher students' rating variance. In a more comprehensive study, Damron (1996) found that it is likely that most of the factors contributing to student instructional ratings are unrelated to an instructor's ability to promote student learning.

The magnitude of teacher's impacts on student's achievement outcomes is again affirmed by the findings of Aaronson, Barrow and Sander (2007). The measure of teacher quality employed in their study is the effect on ninth-grade mathematics scores of a semester of instruction with a particular teacher, controlling for prior-year mathematics scores and a range of observable student characteristics. The improvement on the part of the teacher positively influences the score of the students over one year by approximately one-fifth of average yearly gains. The magnitude of this estimate is statistically similar to the results reported by Rockoff (2004) and Rivkin et al. (2005).

2.7. Use of Students' Evaluation of Teaching Effectiveness

Various uses to which students' evaluation could be put have been identified. According to Yoloye (1978), the purpose of evaluation of teaching effectiveness is its usefulness to various groups interested in improving the quality of teaching in schools. Data on teaching effectiveness could serve both formative and summative purposes. Situations in which such data could be useful include:

(i) Measuring classroom process variables;
(ii) Measuring the attainment of programme objectives;
(iii) Measuring program implementation;
(iv) Identifying difficulties in programme use;
(v) Identifying changes introduced by teachers;
(vi) Identifying typical instructional pathways;
(vii) Providing support for data from other sources;
(viii) Measuring unintended outcomes

According to Cruickshank (1986), research into factors affecting effective teaching has taken different approaches over the years. Initially, researchers sought to identify aspects of the teacher that might be associated with effective teaching. However, factors such as teacher personality, appearance, intelligence, and gender were unrelated to students' achievement and effective teacher could not be distinguished from ineffective teacher on these characteristics. Feldman (1976) reviewed studies in which students highlighted characteristics of superior teachers, such characteristics found correlations between characteristics and global ratings. These studies demonstrated the importance of the teacher's classrooms behaviour. He found 19 dimensions he believed formed the basis of students' belief about effective teaching. These are: value of the course, teacher's interest in the course, enthusiasm, subject matter knowledge, breadth of subject coverage, preparation and organization, presentation skills, speaking skills, sensitivity to student achievement, clarity of objectives, value of supplementary materials, classroom management, frequency and value of feedback, course difficulty, fairness, openness, encouragement and challenge, availability and, respect and friendliness.

Medley (1977) demonstrated that effective teachers manage their classes differently than less effective teachers. They exercise more control; apply rules consistently; and spend more time on academic tasks. Other studies (e.g. Marsh and Dunkin, 1992) have identified such teacher behaviours as subject knowledge, organizations, efficiency, self confidence, expectation level of students, and task orientation as characterizing effective instruction. Using data from several sources (factor analysis, reviews of current instrument, and interviews with teachers) Marsh and colleagues (Marsh, 1983, 1984, 1987; Marsh and Dunkin, 1992; Marsh and Roche, 1997), conclude that teaching is multidimensional. Specifically, they identified nine dimensions of teaching which are: learning/value, instructor enthusiasm, group interaction, individual rapport, organization/clarity, breadth of coverage, examination/grading, assignments/readings, and workload difficulty.

An examination of the literature on the evaluation of teaching effectiveness revealed the existence of a large variety of close-ended rating scales. These scales vary in both the number and content of items used. This diversity of items suggests lack of information and agreement on the factors involved in effective teaching. The diversity of items probably also reflects Marsh and Roche's (1992) view that items on such evaluation scales should reflect multidimensionality of effective teaching. A recent series of articles in the American Psychologist dealt with some of the major validity issues pertinent to teaching evaluation instruments (Marsh and Roche, 1992). These authors suggest at least a moderate relationship between ratings of teaching effectiveness and measures of students' achievement.

Students' evaluation of teachers' performance, or student ratings, is one of the most controversial techniques used to identify teaching effectiveness. Aleamoni (1981) offers the following arguments to support the use of students' ratings of teaching effectiveness:

1. Students are the main source of information about the learning environment, including teachers' ability to motivate students for continued learning, rapport or degree of communication between instructors and students.

2. Students are the most logical evaluators of the quality, the effectiveness of, and satisfaction with course content, method of instruction, textbooks, homework, and students' interest.

3. Student ratings encourage communication between students and their instructor. This communication may lead to the kind of student and instructor involvement in the teaching-learning process that can raise the level of instruction.

4. Student ratings of particular instructors and courses can be used by other students to select courses and instructors, and may increase the chances that excellence in instruction will be recognized and rewarded.

2.8. Students' Evaluation of Teaching Effectiveness and Scholastic Development in Colleges of Education

The evolution of NCE progrmame in Nigeria was as a result of the Ashby Commission set up in 1959 to forecast Nigeria Educational Needs from 1960 to 1980 (Adesina, 1977). The Commission identified two major problems in teacher education as: low output and poor quality of teacher produced. It was also observed by the Commission that new techniques approaches and additional knowledge were required for the training of teacher. The Commission further observed that higher education foundations which were primary and secondary school systems, were narrow and the structures of higher education cannot be large enough or varied enough to meet the needs of the nation. If the foundations are made of materials that crumble, in a few years then the whole structure will be in danger. (Adesina, 1977). To solve this problem, the Commission recommended among others, a modification of the Grade I Teachers' Certificate to what is today known as the Nigeria Certificate in Education (NCE) which was formally awarded by Advanced Teacher Training College (ATTC). According to Adesina, the first Advanced Teacher Training College (ATTC) was established at Abraka in 1961. This was closely followed by those in Lagos, Ibadan, Ondo, Owerri and Zaria respectively in 1962. It was expected that new programmes would help in bridging the gap between Teacher Grade II Certificate and Bachelor in Education Degree. The graduates of the ATTC, which became Colleges of Education (CoE) were regarded as middle level manpower in education. If it in the public service, they are employed into administrative cadres as executive officers.

To increase the quality of the NCE programme and for the purpose of harmonization and standardization, the Federal government by virtue of Decree No 3 of 1989 set up the National Commission for Colleges of Education (NCCE) as the highest supervisory body for all NCE

progrmames in Nigeria. According to Act of Parliament No. 3 of 1989, section 5, the functions of the Commission include:

1. Through the Minister, advice the federal government on, and co-ordinate all aspects of teacher education falling outside the universities and polytechnics.

2. Make recommendations on the national policy necessary for the full development of teacher education and training of teachers.

3. Harmonize entry requirements and duration of courses in the Colleges of Education, lay down minimum standards for all programmes of teacher education and accredit their certificates and other academic awards after obtaining thereof prior approval of the Minister.

4. Approve guidelines, setting out criteria for the accreditation of all Colleges of Education in Nigeria.

5. Determine after appropriate consultations, the qualified teachers needed for the country and prepare periodic master plans for the balanced and coordinated development of Colleges of Education.

6. Make recommendations on the development of pre-vocational/technical, agricultural business, and home economics education in our primary and secondary schools, and advise as to the necessary facilities contribution of government and industry, and how to ensure that our women articulate and take full part in this.

7. Enquire into and advice the federal military government of the financial needs of the Colleges of Education and to receive block grants from government and allocate them to colleges according to government's directives.

8. Collate and analyze any public information related to teacher education in the country

9. Channel all external aids to Colleges of Education

10. Undertake periodic review of terms and condition of personnel teaching in the Colleges of Education and to advise government.

At the formal inauguration of the governing board of the NCCE, by the then Honorable Minister of Education, Prof. Babatunde Fafunwa, at Lagos, in 1989, the Commission was challenged by the government to be fair as they cannot compromise on accountability and poor quality in teacher education. The issue of quality in teacher education cannot be over emphasized. The set up of the NCCE could be regarded as the greatest prestige and recognition ever given to Colleges of Education and other NCE awarding institutions in Nigeria. Within its few years of existence the Commission had been able to establish and enforce the minimum standard for training NCE teachers, execute some researches and crucial aspects of teacher education and undertake pre-accreditation and accreditation visits to all NCE awarding institutions in the country for the purpose of accrediting the full-time NCE programme.

The NCE curriculum covered wide range of subjects and each student was required to choose and specialize in two teaching subjects. Education, usually a general course was basically secondary school oriented. Different types of course components; courses and teaching subjects existed in different institutions. They comprised of NCE secondary, where education, arts science and social subjects were offered. The methodology was basically for teaching secondary school children. NCE technical courses offered were basically technical subjects including computer, agricultural, and engineering education courses. NCE Business and Vocational Education courses include fine and applied arts and home economics, wood and metal works. The methodology of teaching the subjects usually forms part of the compulsory subjects – NCE Primary Education Students were specially trained to teach primary school children. All primary school subjects courses are tailored towards teaching the handicapped, including the gifted in secondary and primary schools. Teaching subjects were offered in combination with compulsory special education subjects.

According to NCCE Minimum Standard for Nigeria Certificate in Education, it was categorically stated in No.3 that by the end of the NCE programme, the students should be able to:

(a) Discuss intelligently the main ideas that have affected and still affect the development and practice of education generally, and in Nigeria in particular;

(b) Examine the main psychological health and socio-economic factors that may help or hinder a child's education performance;

(c) Study learner approximately to determine the most effective ways of relating to them to ensure their maximum achievement;

(d) Professionally combine the use of conventional and ICT or other innovational instructional/learning strategies in generating and imparting knowledge, attitudes and skills;

(e) Develop, select, and effectively use appropriate curriculum processes, teaching strategies, instructional materials and methods for maximum learner achievement;

(f) Broaden their intellectual perspective through the general studies education programme;

(g) Demonstrate desirable attributes in moral and character development;

(h) Discuss intelligently major issues affecting teacher education and the teaching profession in Nigeria;

(i) Identify major problems of Education in Nigeria, and their corresponding solutions;

(j) Demonstrate proficiency in measuring and evaluating learning outcomes, as well as in carrying out appropriate research on educational problems in Nigeria.

2.9. Instrumental Research

Instrumental research according to Ziman (2002) means "the production of knowledge with clearly foreseen or potential uses. Research that is subordinated to a concrete purpose of application and utilization of the knowledge sought qualifies as instrumental. The practice and norms of instrumental research are almost the opposite of those of academic science. Being normal funded by contracts rather than by patronage, instrumental science is so captive of material interests and commercial agendas that is partisan rather than objective in its judgments. Its findings are exploited as intellectual property, and are thus proprietary rather than public. Because it serves specific power groups and technical elites, it tends to produce "local" rather than universal knowledge (Wilholt, 2006). Processes in instrumental research are guided by design rules. For instrumental research to promote enterprise that such research aims at the design rules must be strictly adhered to by the researcher (Wilhot, 2006). Generation of items, trial testing and the estimation of the psychometric properties to establish the validity and reliability of the instrument are significant steps in the processes involved in instrumental research.

Instrumental research uses stakeholders as a means for collecting data. In this study, lecturers and students were used. The information gathered from the stakeholder through scientific methods or any means of collecting data is translated into scientific knowledge with the means of statistics or other quantifiable method.

2.10 Validation of Instruments

Research instruments are very important in a research. Selection of the instrument to be used is not as important as determining the right instrument. A research instrument must be assessed prior to use for both validity and reliability. Survey research begins with assessing the validity and reliability of the research instrument selected. A systematic approach to establishing validity and reliability of a research instrument is required.

One of the criteria that is essential to having a good measuring scale is validity. Validity refers to the accuracy of a measure: Does it accurately measure the variable that it is intended to measure? If we were developing a scale to measure teaching effectiveness for example, a major concern would be whether our measuring devices measure the concept as it is theoretically defined. The validity of many measures is difficult to demonstrate with any finality. However,

several procedures are used by researchers to assess the validity of measures, and good research always evaluates any measure used by applying at least some of these procedures (Zeller and Carmines, 1980). Validity refers to the extent to which a scale measures exactly what it is being developed to measure. Falaye (2008) stressed that "to ensure validity, the counselor or evaluator must ensure that the items in the instrument cover a representative sample of the entire content area, which may be cognitive, affective and psychomotor". Theresa (2006) defined validity as the appropriateness, meaningfulness, and usefulness of the specific inference researchers make based on the data they collect. She said that it is possible to have highly reliable instrument that are useless. For measuring to be useful, Adegbuyi (2011) suggested that, 'it must be reliable and valid'. The ways of determining validity are discussed below.

Face Validity involves assessing whether a logical relationship exists between the variable and the proposed measure. Essentially, it amounts to a rather commonsense comparison of what comprises the measure and the theoretical definition of the variable: Does it seem logical to use this measure to reflect that variable? We might measure child abuse in terms of the reports made by physicians or emergency room personnel of injuries suffered by children. However, this is not a perfect measure because health personnel might be wrong. It does seem logical that an injury reported by such people might reflect actual abuse. No matter how carefully done, face validity is clearly subjective in nature. All we have is logic and common sense as arguments for the validity of a measure. This serves to make face validity the weakest demonstration of validity, and should usually be considered as no more than a starting point. All measures must pass the test of face validity. If they do, we should attempt one of the more stringent methods of assessing validity.

An extension of face validity is called content validity or sampling validity**.** It has to do with whether a measuring device covers the full range of meanings or forms that would be included in a variable that is being measured. In other words, a valid measuring device would provide an adequate or representative sample of all content, or elements, or instances of the phenomenon being measured. For example, in measuring teaching effectiveness, it would be important to recognize that some indicators, such as mastery of subject matter, teaching style, communication skills, and organization measure teaching effectiveness. A valid measure of teaching effectiveness puts all these indicators into consideration.

Validity can also be established by showing a correlation between a measuring device and some other criterion or standard that we know or believe accurately measures the variable under consideration. Or we might correlate the results of the measuring device with some properties or characteristics of the variable the measuring device is intended to measure. For example, a scale intended to measure teaching effectiveness should correlate with the achievement of students, if it is to be considered valid. The key to criterion validity is to find a criterion against which to compare the results of our measuring device. Criterion validity moves away from the subjective assessments of face and content validity and provides the more objective evidence of validity. One type of criterion validity is concurrent validity**,** in which the instrument being evaluated is compared to some already existing criterion, such as the results of another measuring device. If I had developed a new scale on teaching effectiveness, for example, i could compare its results to the results from existing scales on teaching effectiveness.

A second form of concurrent validity is predictive validity, in which an instrument is used to predict some future state of affairs. Sometimes the future state of affairs used to validate measure is too far in the future and an earlier assessment of validity is desirable. If so, a variation on predictive validity, called the known groups approach, can be used. If it is known that certain groups are likely to differ substantially on a given variable, a measure's ability to discriminate between these groups can be used as an indicator of its ability to predict who will be in these groups in the future.

The most complex of the types of validity discussed here, involves relating a measuring instrument to an overall theoretical framework in order to determine whether the instrument confirms a series of hypotheses derived from an existing and at least partially verified theory (Cronbach & Meehl, 1955; Zeller & Carmines, 1980). This can be in terms of not how they simply relate to any criterion but rather to measures of concept that are derived from a broader theory. This is the principle behind construct validity which is adduced with numerous comparisons with a variety of concepts derived from theory. For example, Murray Straus and his colleagues in 1996 developed a Conflict Tactics Scale (CTS) to measure how partners resolve conflicts in relationships. It is partly a measure of the use of psychological and physical aggression, but it also measures forms of conflict resolution in general. The CTS consists of a number of subscales, and Straus and colleagues assessed the construct validity of the subscales.

In addition to validity, measures are also evaluated in terms of their reliability, refers to a measure's ability to yield consistent results each time it is applied. Determining reliability requires reliability testing to ascertain both stability and internal consistency of the research instrument. Stability, or "test-retest reliability", is determined by using a reliability coefficient, discovering the consistency of results obtained on more than one administration of the instrument. The usual interval is 2 to 3 weeks. The reliability coefficient is "the correlation coefficient between the two sets of scores" (Polit & Beck, 2004). While attitudes tend to remain stable, be aware that knowledge can change the second administration as a direct result of the first administration. The most widely used method is the calculation of the coefficient alpha or Cronbach's alpha.

Chapman (2003) defined reliability as the extent to which a measurement is repeatable with the same results. Reliability according to Falaye (2008) refers to consistency between two sets of scores obtained or observations made using the same instruments. Bamidele, 2004) who says a reliability scale should give the same measurement over and over again concluded that reliability of a measuring instrument is the degree of consistency in response of the respondents on different occasions. In other words, reliable measures do not fluctuate from time to time unless the variable being measured has changed. In general, a valid measure is reliable. The reliability of a test is intended to specify the degree of accuracy, dependability or consistency with which the test measures the variable it is designed to measure (Thorndike, 1990).

The concept of reliability has been under continuing reformation and redevelopment with the resulting increase in clarity and range of applicability. Good (1996) advocates three reasons for estimating reliability coefficient to include: guiding test selection, supporting inference about test score, standard error of measurement and supporting inference about validity of a perfect reliable test.

Methods of employing reliability of an instrument are of four types. The first and most generally applicable assessment of reliability is called "test-retest". As the name implies, this technique involves applying a measure to a sample of individuals and then, somewhat later, applying the same measure to the same individuals again. After the retest, there are two scores on the same measure for each person. As a matter of convention, a correlation coefficient of .80 or more is normally necessary for a measure to be considered reliable. If a reliability coefficient does not achieve the conventional level but is close to it, the researcher must make a judgment

about whether to assume the instrument is reliable (and that the low coefficient is due to factors other than the unreliability of the instrument) or to rework the instrument in order to obtain higher level of association.

In actual practice, the test-retest method sometimes cannot be used quite as simply as suggested because exposing people to the same measure twice creates a problem known as "multiple-testing effects" (Campbell & Stanley, 1963). A group of people may not react to a measure the second time the same way as they did the first. They may, for example, recall their previous answers, and this could influence their second response. Students might recall previous responses during the first attempt and maintain consistency or purposefully change responses for the sake of variety. Either case can have a confounding effect on testing reliability. The most serious problem with the test – retest method is the actual memory of particular items and of previous response to them.

A parallel test form of reliability estimate is the correlation between observed scores on two parallel tests. When developing the scale, two separate but equivalent versions made up of different items are created. These two forms are administered to the same individuals at a single testing session. The results from each form are correlated with each other, as was done in test-retest, using an appropriate statistical measure of association, with the same convention of r= .80 required for establishing reliability. If the correlation between two forms is sufficiently high, we can assume that each scale is reliable.

The advantage of multiple forms is that only one testing session is required and no control group is needed. This may be a significant advantage if either parallel testing sessions or using a control group is impractical. In addition, one needs to worry about forms changes in a variable over time because both forms are administered during the same testing session. Again, the problem with this method is that in preparing parallel form tests, there is the danger that the two forms will vary so much in content and format that each will have substantial specific variance distinct from the other.

In the split-half method of reliability, the test group responds to the complete measuring instrument. The items that make up the instruments are then randomly divided into two halves. Each half is then treated as though it was a separate scale, and the two halves are correlated by using an appropriate measure of association. Once again, a coefficient of r=. 80 is needed to demonstrate reliability.

Internal consistency reliability is estimated using only one test administration, and thus avoids the problem associated with repeated testing. One complication in using the split-half reliability test is that the correlation coefficient may understate the reliability of the measure because, other things being equal, a long measuring scale is more reliable than a shorter one. Because the split-half approach divides the scale in two, each half is shorter than the whole scale and well appears less reliable than the whole scale. To correct for this, the correlation coefficient is adjusted by applying the Spearman-Brown formula.

The split-half reliability test has several advantages. It requires only one testing session, and no control group is required. It also gives the clearest indication of reliability. For these reasons, it is preferred method of assessing reliability when it can be used. The only disadvantage, as noted, is that it cannot always be used.

A study that established the foundation of Instrumental Enrichment (IE) Research was conducted by Feuerstein and his colleagues with a population of five hundred socially and culturally disadvantaged Israeli adolescents (Feuerstein, R., R & Y; Hoffman, M., & Miller, R. 1980; Rand, Tannenbaum, & Feuerstein, 1979) The main research hypothesis was that cognitive performance and school achievement of students who receive two years of the IE program will be higher than those of the matching groups of students who receive the same amount of general enrichment lessons. The pre- and post-test measures included Thurstoneís Primary Mental Abilities Test and a specially designed curriculum-based Achievement Battery. The results confirmed the main hypothesis: IE group students showed significantly better results on the post-tests. In the cognitive area better results were achieved in spatial relations, figure grouping, numbers, and addition sub-tests. In the curriculum based tasks IE group students performed significantly better in Geometry and Bible studies. A follow-up study (Rand, Y., Mintzker, Y., Miller, R., Hoffman, M., & Friedlender, Y. 1981) conducted two years after the end of IE intervention demonstrated that IE group students continued to perform better that control group students in both verbal and non-verbal cognitive tests.

A large scale external validation of the IE program was conducted by the authors of the IE program in Venezuela (Ruiz, 1985; Savell, Twohig, & Rachford, 1986). In the study, adolescent students from higher and lower socio-economic status (SES) groups participated for

two years in the IE program. The effectiveness of the IE program was assessed with the help of pre-and post tests of general intellectual abilities, academic performance in mathematics and language, and in self-concept. The experimental IE group (318 students) was compared to the control group of equal size. Statistically significant gains for the IE group were observed in all three spheres: general intellectual abilities, academic performance and the self-concept. Before intervention, higher-SES group showed higher results in all three spheres. Some difference remained after intervention, but both groups improved their performance. As to intellectual abilities, both groups benefited equally, while in academic performance the high-SES group benefited more. It is interesting that pre-test differences in self-concept disappeared after intervention.

2.11 Summary of the Review

The views of scholars about teaching effectiveness as reviewed in the literature seem to be diverse with regards to what constitutes teaching effectiveness. There appears to be a bottom line drawn among researchers on indicators of teaching effectiveness which hinge mainly on the ratings of observable teacher behaviour/characteristics in classrooms.

The review also focused on the concept of teaching and teaching strategies because teaching is a polymorphous concept. Teaching, as conventionally understood by a traditional teacher, is the act of disseminating information to learner in the classroom. Various types of teaching as identified by Chauhan (1979) were also reviewed together with innovation in teaching.

The trend of teacher education programme in Nigeria was also reviewed since the successful implementation of any school programme depends largely on the quality of teachers. As a way of ascertaining the worth of the teacher in the education sector, many studies have identified the roles, responsibilities, problems and major contributions of the teacher towards the achievement of educational goals and objectives. (Barr, 1948; Majasan, 1995; Taiwo, C.O. 1980)

Evaluation has been variously defined (Alkin, 1970, Lewy, 1970, Yoloye 1978). There are also many models of evaluation (e.g. ATO, CIPP, EIPOL, Discrepancy, CES etc) but it has been discovered that no single model can solve all evaluation problems, rather the most suitable model should be used to provide feedback for programme designers, implementers and other relevant stakeholders (Stake 1967; Yoloye, 1978; Obemeata, 1984).

The literature reviewed indicates the needs for evaluating teaching effectiveness as an important means of achieving educational goals and objectives. Also, it will help in making decision by the school. Students in the Colleges of Education are faced with personal, academic and societal pressures in the course of their educational development. Teaching though, may be an art, effective teaching can be studied scientifically, its quality documented systematically and successfully imparted through good formal programme in form of lecturing. Lecturing is a ubiquitous teaching method in higher institutions of learning which needs to be evaluated.

The evolution of NCE progrmame in Nigeria was as a result of the Ashby Commission set up in 1959 to forecast Nigeria's Educational Needs from 1960 to 1980 (Adesina, 1977). The Commission identified two major problems in teacher education as: low output and poor quality of teacher produced. The Commission further observed that higher education foundations which were primary and secondary school systems cannot be large enough or varied enough to meet the needs of the nation, if the foundations are made of materials that crumble, in a few years, then the whole structure will be in danger (Adesina 1977). To solve this problem, the Commission recommended among others, a modification of the Grade I Teachers' Certificate to what is today known as the Nigeria Certificate in Education (NCE).

The concepts of validity and reliability were also examined. Validity of any instruments refers to the extent to which the particular instrument measures what it intends to measure. It means that a test or scale that is developed to measure a particular trait or behaviour should measure just that and not measure something else.(Falaye, 2008). Hills (1976) also defined validity as the degree to which the tests measure what they were supposed to measure. Validity refers to the accuracy of a measure. In addition to validity, measures are also evaluated in terms of their reliability, which refers to a measure's ability to yield consistent results each time it is applied. In other words, reliable measures do not fluctuate from time to time unless the variable being measured has changed. Reliability refers to consistency between two sets of scores obtained or observations made using the same instrument. (Falaye, 2008).

CHAPTER THREE

METHODOLOGY

This chapter presents the general plan on which the study was carried out. It includes the research type, population, sample and sampling techniques, instrumentation, data collection and analysis procedures aimed at answering the research questions.

3.1 Research Type and Design

This study employs a mix 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 of teaching effectiveness scale in Colleges of Education (SETES-CE). 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.

3.2 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.

3.3 Sampling Technique and Sample

Stratified sampling technique was employed in the grouping of the Colleges of Education into federal, state and private. In all, four (4) are owned by the federal government, seven (7) are owned by state government, while the remaining eleven (11) colleges belong to various private bodies. 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 as shown in Table 3.1. 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. Overall, a total of six hundred and forty (640) students and twenty – four (24) lecturers participated in the validation process of the study.

Table 3.1: Classification of Colleges of Education in the Southwest Zone of Nigeria.

States	No. of Federal Colleges	No. of State Colleges	Total
Ekiti	-	01	01
Lagos	01	02	03
Ogun	01	01	02
Ondo	01	-	01
Osun	-	02	02
Oyo	01	01	02
Total	04	07	11

Adapted from JAMB Brochure, 2009

Table 3.2: List of Colleges of Education Sample.

S/N	State	Colleges of Education	Ownership	Selection
Ekiti	1.	College of Education, Ikere – Ekiti.	State	Not Selected
Lagos	1.	Federal College. of Education (Technical), Akoka.	Federal	Not Selected
	2.	Adeniran Ogunsanya College of Educ. Ijanikin.	State	,,
		Michael Otedola College. of Primary Education, Epe	State	,,
Ogun	1.	Federal College of Education, Osiele, Abeokuta.	Federal	Selected
	2.	Tai Solarin College of Education, Ijebu – Ode.	State	Not Selected
Ondo	1.	Adeyemi College of Education, Ondo.	Federal	Selected
Osun	1.	Osun State College of Education, Ila – Orangun.	State	Selected
	2.	College of Education, Ilesa, Osun State.	State	Not Selected
Oyo	1.	Federal College of Education (Special), Oyo.	Federal	Not Selected
	2.	Emmanuel Alayande College of Education, Oyo.	State	Selected

Table 3.3: List of Courses of Study and Students Sample in each College of Education.

Schools	Course of Study	No. of Students		
		Yr II	Yr III	Total
Art & Social Sciences	Economics/History	04	04	08
	Economics/Political Science	04	04	08
	Music (Double Major)	04	04	08
	Political Science/Social Studies	04	04	08
		16	**16**	**32**
Education	Primary Education/English Language	04	04	08
	Primary Education/Integrated Science	04	04	08
	Primary Education/Social Studies	04	04	08
	Primary Education/Yoruba	04	04	08
		16	**16**	**32**
Languages	English/Political science	04	04	08
	English/Yoruba	04	04	08
	Yoruba/History	04	04	08
	Yoruba/French	04	04	08
		16	**16**	**32**
Science	Biology/Chemistry	04	04	08
	Computer Science/Economics	04	04	08
	Integrated Science (Double Major)	04	04	08
	Integrated Science/Biology	04	04	08
		16	**16**	**32**
Vocational & Technical Education	Agricultural Science	04	04	08
	Business Education	04	04	08
	Home Economics	04	04	08
	Technical Education	04	04	08
		16	**16**	**32**
	Grand Total (Per College)	**80**	**80**	**160**

3.4 Research Instrument

The instrument, SETES-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.

3.5 Procedure for the Development of the Scale

3.5.1 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. On Tuesday, April 6th, 2010, 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 SETES-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.

3.5.2 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 including my supervisor 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.

2.5.3. 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.

3.5.4 Establishing the Subscales of SETES-CE

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, 1955: 977). 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).

3.5.5 Determination of SETES-CE'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 (1994) 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 (1991) stated that alpha values between .80 and .90 should be considered very good. Therefore, in this study the suggestions of Nunnally and Bernstein (1994) and DeVellis (1991) were considered.

3.5.6 Use of Final Version of SETES-CE

The final scale after the validation identified four components namely preparation with eight (8) items, personality having fourteen (14) items, followed by classroom interaction with thirty – eight (38) items and evaluation forming thirteen (13) items. A total of seventy – three (73) items form the final scale. The final scale was administered on 200 students each selected from the remaining two Colleges of Education namely, Adeniran Ogunsanya College of Education, Lagos and College of Education Ikere - Ekiti, Ekiti State. In each of the colleges, one particular general course each in education was selected in year II and III. Also, the researcher obtained information about the lecturers teaching the selected courses from the office of the dean, school of education of each college in order to consider their rank, age, gender and year of experience before the administration of the scale. After identifying the courses, and based on the information obtained from the deans' offices, four lecturers among those teaching the courses were selected and rated by the students from the five schools of the two colleges.

3.6 Method of Data Analysis

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. Descriptive statistics was used to answer research questions 3 and 4. To determine the degree of effectiveness of the lecturers, percentile rank was used, 75^{th} percentile represents highly effective lecturer, 50^{th} percentile represents effective lecturer while 25^{th} percentile represents ineffective lecturer. ANOVA and Scheffe Post hoc test were used to answer research question 5. Research question 6 was answered with the use of t – test, while research question 7 (i & ii) was answered

with the use of ANOVA. Research question (7iii) was analysed by t – test and finally, research question 8 (i & v) was analysed with the use of t-test and 8 (ii, iii & iv) was analysed with the use of ANOVA.

3.7 Methodological Challenges.

One of the challenges that the researcher faced was the attitude of some lecturers towards students evaluating their teaching effectiveness. Moreover, the constant and unpredicted industrial actions embarked upon by the staff of the college, and students' unrest in some cases also posed some challenges to the study. In this study, the population of both the student and the lecturers was a challenge to the researcher because the lecturers involved have to be those that had taught the selected students so as to be able to rate their teaching effectiveness, therefore, the researcher went through some findings to select the lecturers and students appropriately for the study.

CHAPTER FOUR

RESULTS AND DISCUSSION

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

4.1 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 4.1: 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 4.1 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 components analysis) is conducted.

The correlation matrix of the analysis shows that Fifty-six (62.22%) out of the possible ninety pairs of correlation shown here are significant at.05 levels. Most of the bivariate correlations are positive with only eight (8.88%) out of the ninety having negative values

Table 4.2 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 4.2: 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.

The second component has to do with retaining 70% of the components accounting for the total variance. In this study, 60% of the variance could only be accounted for with the forty-four components. Forty-four components are still too large as the issue of parsimony with regard to data reduction has been defeated, and as such, the forty-four components were categorized by the researcher into four components that are closely related.

Table 4.3.1Initial Eigen values and Percentage of Variance Explained by Each Component

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

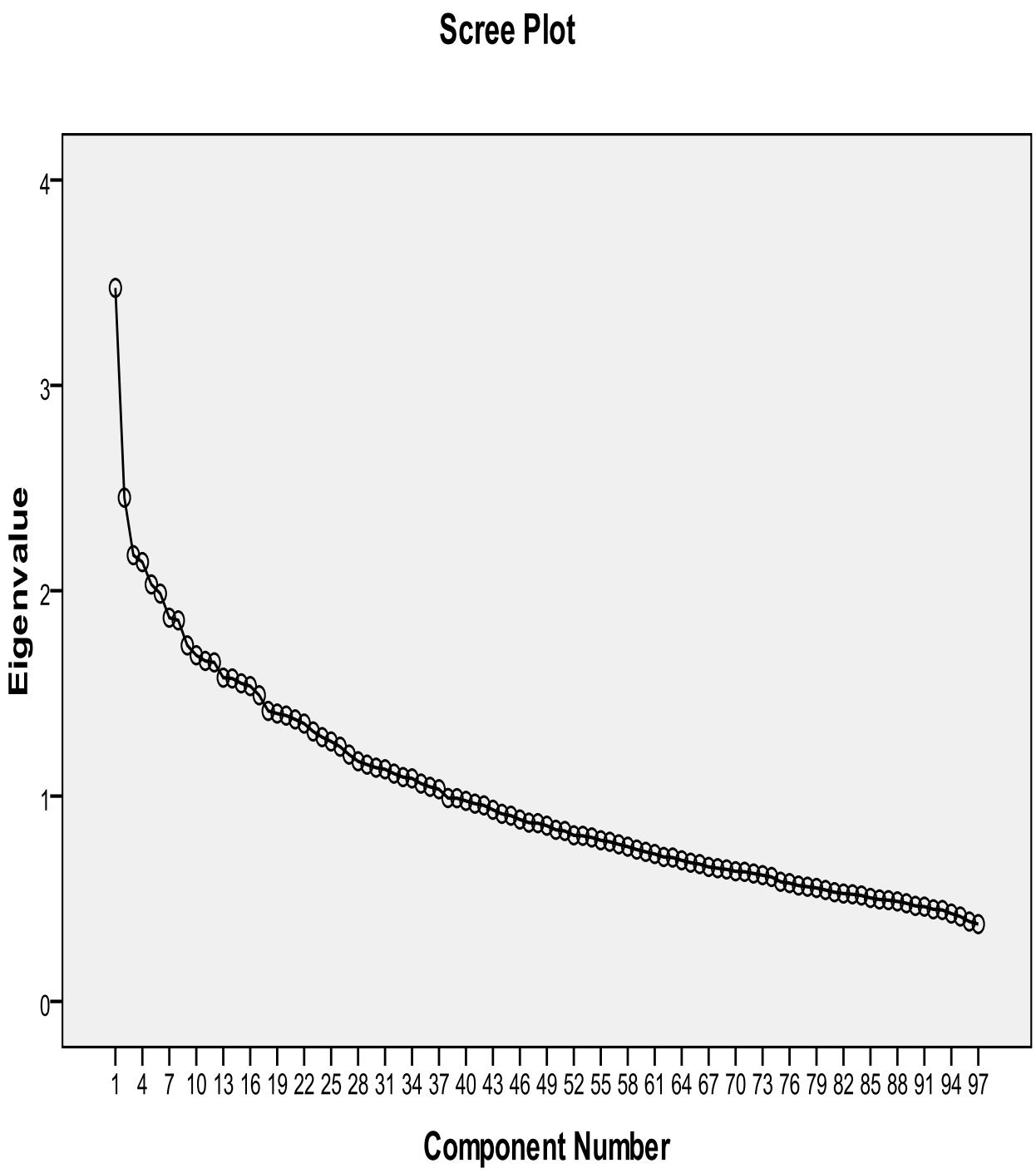

Fig 4.1: Scree Plot of Teaching Effectiveness

The third criterion is to assess the Scree plot and retain all the components within the sharp descent which is shown in Fig 4.1. This criterion provides a simplistic way of providing reliable components for this study. In this diagram, the sharp descent that is realistic lies between 4 and 7 components and meaningful interpretation can be further enhanced when the residuals are looked at. The goal of data reduction is parsimony. Based on the range of components in the diagram (4-7 components), residuals are computed for that range of factors indicating the number of factors to be retained. The range of residuals for 4-7 factors computed which indicate the number of discrepancy between observed and reproduced correlation exceeding 0.05 is 1338-1371 which translates to 21.0% for the range. This implies that increasing the number of components to be retained does not increase the fit of the model.

In summary, four components that are reliable and interpretable are retained as shown in Table 4.4. Three reasons inform this decision. First, scree plot indicates that the number of reliable and interpretable components fall between 4-7. Second, the number of residuals between observed and reproduced correlations is the least when four components are considered. Third, literature indicates that most reliable and interpretable components for Teaching Effectiveness scale are four in number.

Research Question 1(ii)

If reliable components are identified, how can they be meaningfully interpreted?

In order to meaningfully interpret the components retained, the following interpretability criteria are considered. These are:

- There must be at least three items with significant loadings not lower than 0.30.
- Variables that load on a factor must share some conceptual meaning.
- Variables that load on different factors must be seen to measure different constructs.
- The rotated pattern demonstrates simple structure. There must be no case of bipolar factor that gives factor interpretation some complexity.
- There must be relatively moderate to high loadings on one factor only and low loadings on the other factors.

Table 4.4: Rotated Component Matrix[a]

	Components			
	1	2	3	4
Item81	.537	.129	-.006	-.120
Item82	.504	.144	-.059	-.061
Item65	.486	-.183	.145	.016
Item98	.-.024	.478	-.056	.178
Item100	-.011	.475	-.018	-.002
Item83	.467	.141	-.027	-.052
Item102	.463	.075	-.057	.012
Item66	.-.071	-.095	.111	.661
Item99	.-.057	.641	.000	.103
Item84	.454	.028	.009	-.037
Item97	-.031	.444	-.074	.209
Item101	.426	.082	.014	.022
Item64	-.084	.420	.119	.016
Item96	.413	-.084	-.030	.282
Item103	.451	.070	-.043	.054
Item80	.420	.116	.045	-.020
Item62	.-.079	.070	358	.124
Item113	.451	.013	-.003	.156
Item67	.-.076	-.069	.159	.442
Item78	.441	.123	-.056	.155
Item61	.209	.083	.449	-.083
item 51	.405	.055	.150	.078
item 77	.317	.100	-.005	.088
item 111	-.121	.315	.033	.126
Item13	.553	-.093	-.015	.068
Item14	-.084	.113	-.085	.487
Item34	.427	.052	.104	-.030
Item12	.409	.001	.067	.059
Item 15	-.112	.011	-.046	.343
Item 33	.321	.039	.121	.000
Item 53	.033	.028	.017	.420
Item55	.114	.295	-.056	.415
Item35	.404	.146	.116	-.100
Item57	.396	.116	.034	.003
Item56	.396	.222	-.051	.046

Table 4.4: Rotated Component Matrix[a] Continued				
Item36	.392	.143	.078	-.136
Item54	.090	.038	-.025	.390
Item2	.378	-.068	.251	.016
Item32	.004	.056	.048	.368
Item58	.366	.128	-.023	.059
Item52	.330	.141	.115	.051
Item8	-.078	.323	.174	.052
Item20	.604	-.088	.104	-.008
Item5	.601	-.061	-.007	.119
Item21	.079	.565	.-.011	-.119
Item19	.010	.559	.007	-.048
Item4	-.074	.554	..056	.071
Item18	.051	.531	.125	-.142
Item6	-.016	.497	.022	.051
Item17	461	.183	.024	-.108
Item39	.422	-.067	.030	.118
Item 2	.417	.038	.025	.052
Item 3	- 0.83	.389	.126	.022
Item50	.385	-.043	. .104	.194
Item24	-.029	.359	.006	.119
Item37	.312	.145	.070	.017
Item93	.680	.000	.005	-.039
Item94	.017	.002	.678	-073
Item92	-.031	-.019	.025	.473
Item 95	.143	.020	.495	-.066
Item 91	.050	-.023	.462	.053
Item73	-.051	.057	.415	.043
Item48	.394	.221	.254	.073
Item72	.035	.058	-.004	.388
Item45	.004	-.096	.369	..073
Item90	.033	-.008	.347	.020
Item27	-.020	.115	.345	.034
Item74	-.035	.082	.343	.041
Item46	.340	.103	.106	..011
Item49	.333	.032	.181	.079

Table 4.4.1: Component 1 : This component containing thirty - eight (38) items is appropriately tagged ***Classroom Interaction***. This is because most of the items centred on the teaching process in which the teacher dynamically engages the students**.**

Component 1: Classroom Interaction.

Items No.	Items	Factor Loading
2	Adequate time distribution	0.378
5	Understands the course material	0.601
12	Accepts students' opinion.	0.409
13	Uses non verbal communication during teaching.	0.553
17	Communicates appropriately with students.	0.461
18	Use of entire time for effective teaching.	0.531
20	Use of appropriate words during teaching.	0.604
22	Ensures appropriate sitting arrangement during lecture.	0.543
30	Use of instructional materials	0.583
33	Creates learning experiences that make subject matter meaningful for students.	0.321
34	Carry students along during teaching.	0.427
35	Understands and uses of variety of instructional strategies.	0.404
36	Starts teaching from simple to complex.	0.392
37	Encourages students' participation in group discussion.	0.312
39	Concludes the lesson in a clear term.	0.422
46	Uses adequate examples during teaching.	0.340
48	Designs class activities that stimulate curiosity.	0.349
49	Presents lecture in a way that facilitate notes taking.	0.333
50	Uses variety of teaching methods during teaching.	0.385
51	Discusses current development in the field of study.	0.405
52	Provides relevant references during teaching.	0.330
56	Fluent in speaking.	0.396
57	Use of appropriate teaching methods.	0.396
58	Adequacy of instructional materials to teaching.	0.366

64	Encourages students' participation during teaching.	0.420
65	Uses short sentences in explaining terms.	0.486
77	Demonstrate the knowledge of the subject matter.	0.317
78	Enhances presentation with the use of humor.	0.441
79	Stimulates thinking skills of students.	0.586
80	Uses lecture method during presentation.	0.420
81	Has unique ways of distributing questions to students.	0.537
82	Encourages students' development of critical thinking.	0.504
83	Presents the lesson in a clear term.	0.467
84	Gives equal opportunity to students during lecture.	0.454
101	Uses illustration during teaching.	0.426
102	Adequate implementation of the course outline.	0.463
103	Starts and ends lecture on time.	0.451
113	Relates course content to other fields and real life situation.	0.451

Table 4.4.2: Component 2: The 13 items in component 2 measure more of what the lecturer does to progressively ascertain that the objectives of teaching – learning process are achieved. The component is appropriately interpreted as ***Evaluation.***

Component 2: Evaluation

Items No.	Items	Factor Loading
3	Fair in award of marks to students.	0.389
4	Gives adequate feedback to students.	0.554
6	Gives students assignment.	0.497
8	Uses variety of assignment/examination to judge performance.	0.323
19	Gives more extended project to stimulate interest.	0.559
21	Allows students to brainstorm on questions raised during lesson.	0.565
24	Releases examination result on time.	0.359
96	Has appropriate method of evaluating students' work.	0.413
97	Has appropriate way of conducting continuous assessment.	0.444
98	Has appropriate skill in the setting of examination questions.	0.478

99	Gives exercises during lesson.	0.641
100	Develops examination questions that are related to the course content.	0.475
111	Clarifies students' questions.	0.315

Table 4.4.3: Component 3: The fourteen (14) items in this component deal with the uniqueness of the individual lecturer, his/her personal attributes and the component is appropriately tagged ***Personality***.

Component 3: Personality

Items No.	Items	Factor Loading
26	Has unique way of facilitating learning	0.586
27	Smart dressing	0.345
45	Possesses an audible voice	0.369
61	Dedicated to teaching profession	0.449
62	Has knowledge of learners and their characteristics	0.358
72	Dynamic in conducting the lecture	0.404
73	Enthusiastic about teaching the course	0.415
74	Patient in attending to students' need	0.343
90	Possesses self discipline	0.347
91	Admired by professional colleague	0.462
92	Optimistic to assist students	0.425
93	A role model in the society	0.680
94	Punctual in teaching the course	0.678
95	Has self – control	0.495

Table 4.4.4: Component 4 : The eight (8) items that are loaded on component four are mainly based on what the lecturer does before the commencement of the class to ensure an effective teaching and the component is appropriately tagged ***Preparation***

Component 4: Preparation

Items No.	Items	Factor Loading
14	Considers population of the class	0.487
15	Provides adequate lecture materials for the course	0.343
32	Creates learning environment that encourages active engagement.	0.368
53	Creates learning environment that encourages self motivation.	0.420
54	Follows syllabus strictly	0.390
55	Creates learning environment that encourages positive social interactions	0.415
66	Prepares course material for the course	0.661
67	Appropriates planning of the lesson ahead of time	0.442

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 (SETES-CE)?

(ii) the entire Students Evaluation of Teaching Effectiveness Scale (SETES-CE)?

Table 4.5: 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 4.5 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 4.6: 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 P***ersonality 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.

4.3 Research Question 3

What is the pattern of students' evaluation of teaching effectiveness of the different rank of lecturers?

Table 4.7: Descriptive Statistics of Mean and Standard Deviation of Lecturers' Teaching Effectiveness Components According to their Rank

	Classroom Interaction		Evaluation		Personality		Preparation	
Rank of Lecturer	**Mean**	**S.D**	**Mean**	**S.D**	**Mean**	**S.D**	**Mean**	**S.D**
Assistant Lecturer	155.98	7.56	52.99	3.57	57.65	3.77	32.87	2.81
Lecturer III	154.53	11.94	53.45	3.92	57.23	3.65	32.83	2.65
Lecturer II	155.41	7.48	53.32	3.75	57.31	3.77	32.54	2.93
Lecturer I	156.26	7.42	53.33	3.98	57.92	4.04	33.29	2.83
Senior Lecturer	156.33	10.64	53.17	3.99	57.31	3.89	32.85	2.72
Principal Lecturer	154.81	14.03	52.94	3.78	57.71	3.88	32.20	2.76
Chief Lecturer	156.15	13.19	52.60	3.98	57.26	3.69	32.82	2.76

The patterns of students' mean ratings of their lecturers' teaching effectiveness components based on the ranks of the lecturers are captured in Table 4.7 and illustrated by Fig 4.2. The pattern with regard to classroom interaction of students' evaluation of teaching effectiveness of different rank of lecturers shows that students' ratings of Senior Lecturer is the highest (Mean= 156.33), followed by the rating of lecturers in the rank of Lecturer 1 (Mean=156.26), while Lecturer III received the lowest ratings (Mean = 154.53). The evaluation component of lecturers' teaching effectiveness indicates that lecturers in the rank of Lecturer III received the highest mean ratings from their students (Mean = 53.45), and this is closely followed by lecturers in the ranks of Lecturer 1 (Mean = 53.33) and lecturer II (Mean =53.32). Chief Lecturers received the lowest mean ratings from their students based on evaluation component of teaching effectiveness (Mean= 52.60).

With regards to personality component of lecturers' teaching effectiveness, the result shows that Lecturer 1 received the highest mean ratings from their students (Mean=57.92), this is followed by principal lecturer (Mean= 57.71) and assistant lecturer (Mean = 57.65) sequentially . Lecturers in the rank of Lecturer III received the lowest mean ratings with regard to the personality component of teaching effectiveness (Mean= 57.23). The pattern of lecturers' teaching effectiveness with regards to preparation shows that students' ratings of Lecturer 1 is the highest (Mean= 33.29), followed by the ratings of the lecturers in the rank of Assistant Lecturer (Mean=32.87), while Principal Lecturer received the lowest ratings (Mean = 32.20).

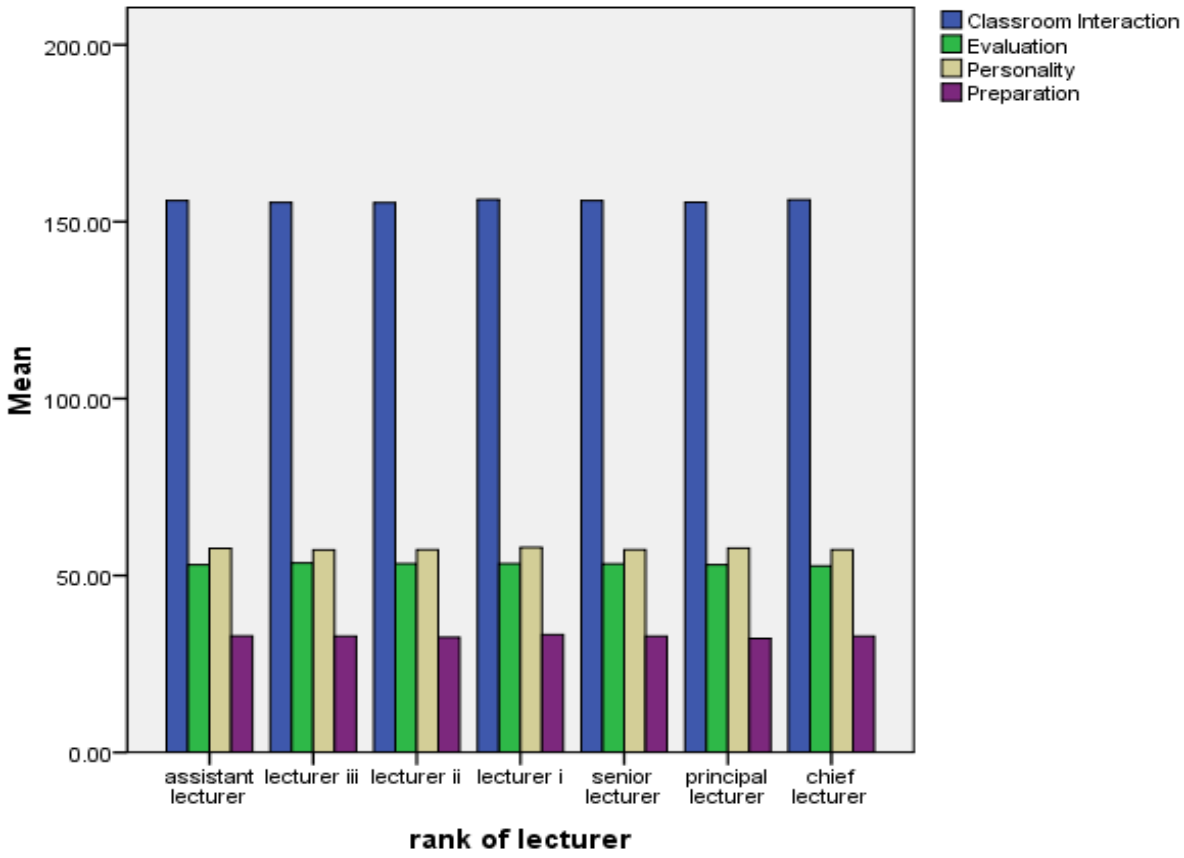

Fig 4.2: Pattern of Students' Ratings of Lecturers' Teaching Effectiveness Components According to their Ranks

Research Question 4:

(4) What is the pattern of teaching effectiveness of lecturers in Colleges of Education as assessed by the students of different schools?

Table 4.8: Mean and Standard Deviation of Lecturers' Teaching Effectiveness Components According to their Schools in Colleges of Education

	Classroom Interaction		Evaluation		Personality		Preparation	
Schools in colleges of Education	**Mean**	**S.D**	**Mean**	**S.D**	**Mean**	**S.D**	**Mean**	**S.D**
Arts & Social science	152.60	18.83	52.65	4.57	57.41	3.78	32.88	2.86
Education	155.28	7.60	53.13	3.40	57.19	4.08	32.70	2.73
Languages	156.22	7.10	53.32	3.83	57.68	3.68	32.74	2.79
Science	156.38	7.04	53.27	3.72	57.96	3.74	32.66	2.77
Vocational & Tech. Educ.	155.28	7.56	53.31	3.75	57.04	3.71	32.93	2.76

The patterns of teaching effectiveness of lecturers in Colleges of Education as assessed by the students from the five schools are captured in Table 4.8 and illustrated on fig 4.3. The pattern with regard to lecturers' classroom interaction shown reveals that students from the School of Science rated the selected lecturers higher than the students from other schools (Mean= 156.38) and this is followed by students' ratings from the School of Languages (Mean=156.22), while the students from the school of education and their counterparts from the School of Vocational and Technical Education had the same ratings in terms of classroom interaction (Mean = 155.28). In the case of evaluation component of lecturers' teaching effectiveness, the results indicate that students from the School of Languages show the highest rating of the lecturers (Mean=53.32) and this is closely followed by students from the School of Vocational and Technical Education (Mean=53.31). Students from the School of Arts and Social Science gave the lowest ratings with reference to the evaluation component of the lecturers' teaching effectiveness (Mean= 52.65).

Personality component of lecturers' teaching effectiveness shows that students from the School of Science gave the highest mean rating (Mean=57.96) of the lecturers. This is followed by students from the School of Languages (Mean= 57.68) and school of arts and social science (Mean = 57.41). Students from the School of Vocational and Technical Education gave the lowest mean ratings with regard to the personality component of the lecturers' teaching effectiveness (Mean= 57.04). The pattern of lecturers' teaching effectiveness with regard to preparation shows that vocational and technical education students' mean rating is the highest (Mean= 32.93), which is followed by students from the School of Arts and Social Sciences (Mean=32.88), while students from the School of Science gave the lowest rating with regard to preparation (Mean = 32.66).

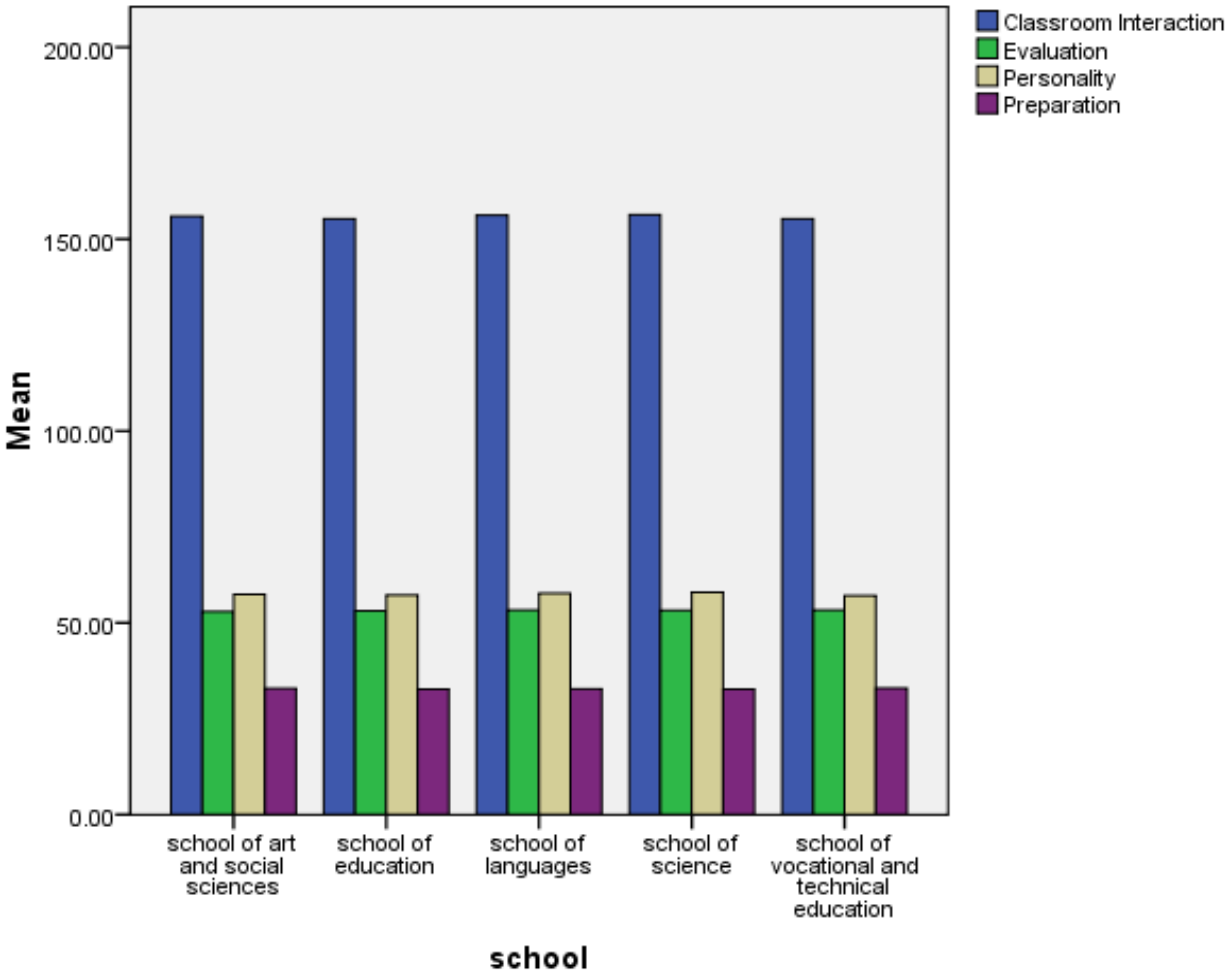

Fig 4.3: Pattern of Students' Ratings of Lecturers' Teaching Effectiveness Components According to their Schools in Colleges of Education

Research Question 5

Is there any difference in the evaluation of teaching effectiveness of lecturers by students from school of?

- Art and Social Sciences;
- Education;
- Languages;
- Science;
- Vocational and Technical Education.

Table 4.9: One Way Analysis of Variance of Teaching Effectiveness Components

Variable	Source of Variation	SS	df	MS	F
Classroom Interaction	Between Group	2922.441	4	730.610	* 6.414
	Within Group	181690.156	1595	113.912	
	Total	184612.597	1599		
Evaluation	Between Groups	99.119	4	24.780	1.657
	Within Groups	23693.865	1584	14.958	
	Total	23792.984	1588		
Personality	Between Groups	175.010	4	43.753	* 3.027
	Within Groups	22834.104	1580	14.452	
	Total	23009.114	1584		
Preparation	Between Groups	16.899	4	4.225	.546
	Within Groups	12215.255	1580	7.731	
	Total	12232.154	1584		

* **Significant at P ≤ 0.05**

Table 4.9 shows that there exists a significant mean difference in the evaluation of teaching effectiveness of lecturers by students from the five schools in the Colleges of Education, in terms of classroom interaction ($F_{(4, 1595)} = 6.414$; p =.000). Also, the Table shows that there exists a significant mean difference in the evaluation of teaching effectiveness of lecturers by students from the five schools in the Colleges of Education in terms of personality ($F_{(4,1580)} = 3.027$; p =.017). However, there is no significant mean difference in teaching effectiveness of lecturers from different schools in the Colleges of Education with regard to evaluation and preparation components.

Table 4.10 Scheffe Post- Hoc Analysis of Classroom Interaction and Personality

Dependent Variable	(I) School	(J) School	Mean Difference	Sig.
Classroom Interaction	Art & Social Science	Education	. -2.6813	.039 *
		Languages	-3.6156	.001 *
		Science	-3.7594	.001 *
	Education	Voc.& Tech. Educ	-2.6719	.040 *
		Languages	-.9344	.874
	Languages	Science	-1.0781	.803
		Voc. & Tech. Educ	0.0094	1.000
	Science	Science	-.1438	1.000
		Voc. & Tech. Educ.	.9437	.870
		Voc. & Tech. Educ.	1.0875	.798
Personality	Art & Social Science	Education	.2225	.970
		Languages	-.2650	.944
		Science	-.5431	.527
	Education	Voc.& Tech Educ.	.3756	.822
		Languages	-.4873	.621
	Languages	Sciences	-.7656	.166
		Voc. & Tech. Educ.	.1531	.992
	Science	Science	-.2781	.931
		Voc. & Tech. Educ.	.6406	.338
		Voc. & Tech. Educ.	.9187	.054

*** Significant at P ≤ 0.05**

Scheffe post-hoc analysis in Table 4.10 shows that the significant mean difference in teaching effectiveness of lecturers with regard to classroom interaction is due to the differences between rating by students from school of arts and social science, and schools of education, (p=.039) languages, (p=.001) science (p=.001) and vocational and technical education (p= .040). There were no significant mean differences in lecturers' personality when pair-wise comparison was carried out among the various schools in Colleges of Education.

Research Question 6

Is there any significant mean difference in the evaluation of teaching effectiveness of lecturers by male and female students?

Table 4.11: A t-test of Teaching Effectiveness of Lecturers by Students' Gender

Dependent Variable	Gender	N	Mean	SD	t	df
Classroom Interaction	Male	800	155.2563	10.0624		1598
	female	800	155.0413	11.3921	.400	
Evaluation	Male	796	53.0854	3.1678		
	Female	793	53.1942	3.7865	-.560	1587
Personality	Male	793	57.7100	3.7985		
	Female	792	57.2008	3.8214	* 2.665	1583
Preparation	Male	793	32.8298	2.8114	.716	1583
	Female	792	32.7298	2.7468		

*** Significant at P ≤ 0.05**

A look at Table 4.11 shows that there is a significant difference in the way male and female students rated their lecturers' personality (t=2.665, df: 1583, p=.008). This means that there is a significant difference in the ratings of male and female students in terms of their lecturers' personality. The difference observed is not as a result of error. Male students' ratings of the personality of their lecturers are significantly higher than their female colleagues. The teaching effectiveness of lecturers with regards to classroom interaction, evaluation, and

preparation do not vary significantly according to students' gender. This implies that students' ratings of their lecturers' teaching effectiveness with regard to classroom interaction, evaluation and preparation are not a function of their gender.

Research Question 7

Do students'

(i) course of study;

(ii) age and

(iii) year of study.

influence their evaluation of teaching effectiveness?

Table 4.12: One Way Analyses of Variance of Teaching Effectiveness Components Based on Age and Course of Study.

Dependent Variable	Independent Variable	Source of Variation	SS	Df	MS	F
Classroom Interaction	Age	Between Group Within Group Total	3076.796 181535.802 184612.798	12 1587 1599	256.400 114.381	*2.241
Classroom Interaction	Course of Study	Between Group Within Group Total	7541.447 177071.150 184612.597	19 1580 1599	396.918 112.070	*3.542
Evaluation	Age	Between Groups Within Groups Total	319.771 23473.213 23792.984	12 1576 1588	26.648 14.854	1.789
Evaluation	Course of Study	Between Groups Within Groups Total	629.765 23163.219 23792.984	19 1569 1588	33.146 14.763	*2.245
Personality	Age	Between Groups Within Groups Total	238.291 22770.823 23009.114	12 1572 1584	19.858 14.485	1.371
Personality	Course of Study	Between Groups Within Groups Total	457.773 22551.341 23009.114	19 1565 1584	24.093 14.410	*1.672
Preparation	Age	Between Groups Within Groups Total	79.062 12153.092 12232.154	12 1580 1584	6.588 7.731	.852
Prparation	Course of Study	Between Groups Within Groups Total	109.818 12122.330 12232.148	19 1565 1584	5.780 7.746	.746

* **Significant at P ≤ 0.05**

Table 4.12 indicates how students' age and course of study influence the evaluation of their lecturers' classroom interaction component of teaching effectiveness. Findings reveal that there exists a significant mean difference in age ($F_{(12, 1587)}$ =2.241, p=.008 and course of study ($F_{(19, 1580)}$ =3.542, p=.000) . This implies that the way students view their lecturers' classroom interaction is a function of their age and course of study. Similarly, the evaluation components

show that there exists a significant mean difference in age ($F_{(12,1576)}$ =1.789, p=.045 and course of study ($F_{(19, 1569)}$ =2.245, p=.002) of the students rating their lecturers' teaching effectiveness . Also, course of study significantly influences the way students rate their lecturers' personality ($F_{(19, 1565)}$ =1.672, p=.034). However, students' ages do not significantly influence the way they rate their lecturers' personality. Similarly, student's courses of study and age have no significant influence on students' ratings of their lecturers' preparation.

Table 4.13: Scheffe Post- Hoc Analysis of Classroom interaction of Teaching Effectiveness Components based on Course of Study

Dependent Variable	Course of Study (I)	Course of Study (J)	Mean Difference	Standard Error	Sig.
Classroom Interaction	Econs /History	Political Science/ Social Studies	* 9.38750	1.67385	.037
	Pol Science/ Social studies	Pry. Educ/English	*-9.42500	1.67385	.035
		Eng. Lang./ Pol science	*-9.33750	1.67385	.041
		Eng.Lang./Yoruba Yor/French	*-9.32500	1.67385	.041
		Bio/Chem	*-9.31250	1.67385	.042
		Int. sc /Bio	*-9.82500	1.67385	.017
			*-9.27500	1.67385	.045

*** Significant at P ≤ 0.05**

Table 4.14: Scheffe Post – Hoc Analysis of Classroom Interaction Component of Teaching Effectiveness based on Age.

students age	N	Subset for alpha = 0.05
		1
16	104	151.8365
23	148	153.1959
24	36	153.6944
21	244	154.8402
22	168	155.3274
20	272	155.4191
19	232	155.8448
18	232	155.9483
17	140	156.6000
30	8	156.7500
15	8	158.5000
26	4	162.7500
25	4	164.5000
Sig.		.524

Table 4.12 shows that the students' course of study and age significantly influenced the way they evaluated their lecturers' classroom interactions. Scheffe post-hoc analysis indicated the direction of variation in the way students offering different courses evaluated their lecturers' classroom interaction. Table 4.13 shows the pair-wise comparison of Economics/History and Political Science/Social Studies shows that there is significant difference (p=.037), other course combinations that show significant mean differences include Political Science/Social studies and Primary Education/English (p= .035), English Lang./Political science (p= .041), English Language/Yoruba (p= .041), Yoruba/French (p= .042), Biology/Chemistry p=.017), as well as Integrated Science/Biology (p=.045). Table 4.14 shows scheffe post – hoc analysis that indicated the direction of variation in the classroom interaction of teaching effectiveness base on age the students.

Table 4.15: t-Test Analysis of Teaching Effectiveness Components Based on Year of Study

Dépendent Variable	Independent Variable	N	Mean	SD	t	Df
Classroom Interaction	Year two Year three	800 800	154.39 156.90	13.17 7.51	-2.817*	1598
Evaluation	Year two Year three	789 800	53.11 53.17	4.06 3.68	-.275	1587
Personality	Year two Year three	785 800	57.41 57.51	3.85 3.78	-.522	1583
Preparation	Year two Year three	785 800	32.92 32.65	2.76 2.79	1.933	1583

* **Significant at P ≤ 0.05**

Table 4.15 shows that there is a significant mean difference in the rating of lecturers' classroom interaction according to students' year of study.(t=-2.817; df: 1598, p =.005). The Table shows that the mean of year three students' rating of lecturers' classroom interaction (M=156.90), evaluation (M=53.17) and personality (M=57.51) are significantly higher than year two students' rating, Only preparation component of teaching effectiveness shows that the mean students' rating of year two students is higher than that of year three students. Therefore, students' level significantly influences students' ratings of their lecturers' classroom interaction, evaluation, personality.

Research Question 8

Would students' evaluation of teaching effectiveness vary significantly across lecturers?'

(i) rank

(ii) age

(iii) year of experience

(iv) gender?

Table 4.16: One Way Analysis of Variance of Classroom Interaction Component of Teaching Effectiveness Based on Lecturers' Rank, Age and Years of Experience.

Dependent Variable	Independent Variable	Source of Variation	SS	df	MS	F
Classroom Interaction	Rank of Lecturer	Between Group	830.154	6	138.359	1.199
		Within Group	183782.443	1593	115.369	
		Total	184612.598	1599		
Classroom Interaction	Age of Lecturer	Between Group	2568.753	13	197.596	1.721
		Within Group	182043.845	1586	114.782	
		Total	184612.598	1599		
Classroom Interaction	Year of Experience	Between Group	2247.546	11	204.322	1.779
		Within Group	182365.052	1588	114.839	
		Total	184612.598	1589		

*** Significant at P ≤ 0.05**

One way analysis of variance in Table 4.16 shows that students' evaluation of their lecturers' classroom interaction does not vary significantly across the lecturers' ranks, age and years of experience. This implies that the students' ratings of classroom interaction do not vary across rank, age and years of experience of their lecturers.

Table 4.17: One Way Analysis of Variance of Evaluation Component of Teaching Effectiveness Based on Lecturers' Rank, Age and Years of Experience.

Dependent Variable	Independent Variable	Source of Variation	SS	df	MS	F
Evaluation	Rank of Lecturer	Between Groups Within Groups Total	111.166 23681.818 23792.984	6 1582 1588	18.328 14.970	1.238
Evaluation	Age of Lecturer	Between Groups Within Groups Total	211..934 23581.050 23792.984	13 1575 1588	16.303 14.972	1.089
Evaluation	Year of Experience	Between Groups Within Groups Total	203.681 23589.303 23792.84	11 1577 1588	18.516 14.958	1.238

* **Significant at P ≤ 0.05**

Table 4.17 shows with respect to evaluation that students' mean ratings do not vary significantly across lecturers' ranks, age and years of experience. That is, the mean ratings of lecturers' evaluation by their students do not vary across rank, age and years of experience.

Table 4.18: One Way Analysis of Variance of Personality Component of Teaching Effectiveness Based on Lecturers' Rank, Age and Years of Experience.

Dependent Variable	Independent Variable	Source of Variation	SS	Df	MS	F	Sig.
Personality	Rank of Lecturer	Between Groups	97.879	6	16.313	1.124	.346
		Within Groups	22911.235	1578	14.519		
		Total	23009.114	1584			
Personality	Age of Lecturer	Between Groups	144.816	13	11.091	.762	.701
		Within Groups	22864.928	1571	14.554		
		Total	23009.114	1584			
Personality	Year of Experience	Between Groups	80.801	11	7.346	.504	.902
		Within Groups	22928.313	1573	14.576		
		Total	23009.114	1584			

* **Significant at P ≤ 0.05**

Using analysis of variance, Table 4.18 shows that students' evaluation of lecturers' personality does not vary significantly across lecturers' ranks, age and years of experience. This implies that the students' mean ratings of lecturers' personality do not vary across rank, age and years of experience.

Table 4.19: One Way Analysis of Variance of Preparation Component of Teaching Effectiveness Based on Lecturers' Rank, Age and Years of Experience.

Dependent Variable	Independent Variable	Source of Variation	SS	Df	MS	F
Preparation	Rank of Lecturer	Between Groups Within Groups Total	131.966 12100.188 12232.154	6 1578 1584	21.994 7.668	2.868*
Preparation	Age of Lecturer	Between Groups Within Groups Total	112.365 12119.789 12232.154	13 1571 1584	8.643 7.715	1.120
Preparation	Year of Experience	Between Groups Within Groups Total	154.840 12077.314 12232.154	11 1573 1584	14.076 7.678	1.833*

*** Significant at P ≤ 0.05**

Students' evaluation of lecturers' preparation component varies significantly according to rank of lecturers ($F_{(6,\ 1578)}$ =2.868: p = .009) and their years of experience ($F_{(11,\ 1573)}$ = 1.833: p=.044). However, lecturers' preparation component does not vary significantly across their age. The inference that can be drawn here is that rank of lecturers and their years of experience significantly influence the way they prepare for their classes.

Scheffe Post Hoc analysis was further carried out to show the direction of variation. The result is presented in Table 4.20.

Table 4.20: Scheffe Post- Hoc Analysis of Preparation Component of Teaching Effectiveness Based on Rank of Lecturers.

Dependent Variable	Rank of Lecturer (I)	Rank of Lecturer (J)	Mean Difference
Preparation	Lecturer 1	Asst. Lecturer	0.42
		Lecturer III	0.45
		Lecturer II	0.75
		Senior Lecturer	0.44
		Principal Lecturer	1.10*
		Chief Lecturer	0.46

*** Significant at P ≤ 0.05**

Table 4.20 shows that there is significant variation between Lecturer I and Principal Lecturer. Also appendix 7 revealed the scheffe post – hoc analysis of four components of teaching effectiveness based on the rank of lecturers.

Table 4.20: t-Test Analyses of Teaching Effectiveness Components Based on Lecturers' Gender.

Dépendent Variable	Independent Variable	N	Mean	SD	t	Df	Sig.
Classroom Interaction	Male	800	155.06	10.86	-.316	1598	.752
	Female	800	155.23	10.64			
Evaluation	Male	794	53.13	3.98			
	Female	795	53.15	3.76	-.116	1587	.908
Personality	Male	792	57.42	3.73			
	Female	793	57.49	3.89	-.340	1583	.734
Preparation	Male	792	32.86	2.73	1.200	1583	.230
	Female	793	32.70	2.82			

In terms of gender of lecturers, Table 4.20 shows that there exist no significant variations in the way their students rated teaching effectiveness on the four components. This implies that students' ratings of their lecturers on the four identified components of teaching effectiveness do not vary across their lecturers' gender.

4.9 Discussion

Discussion in this study is done with reference to the four identified sub-scales of teaching effectiveness, and these are: ***Classroom Interaction, Evaluation, Personality And Preparation.***

Classroom Interaction

The underlying factors within the SETES-CE indicated that more than half of the items in the teaching effectiveness scale loaded highly on classroom interaction component. This implies that classroom interaction is at the core of teaching effectiveness. The psychometric property of classroom interaction scale using Cronbach alpha for the determination of internal consistency gives a value of 0.7178, which is an indication that it is reliable. This could be based on the fact that if the reliability coefficient is squared to obtain the proportion of variance between two variables or between obtained score and true score as the case may be, the internal consistency would yield about 50% of shared variance.

This research found out that Lecturer 1 received the highest mean ratings with reference to classroom interaction and they are followed closely by Assistant Lecturers, while Principal Lecturer recorded the least mean rating on classroom interaction. Lecturer 1 being fourth of the 7- scale ranks in Colleges of Education most likely would not be encumbered by delegated works and must have mastered the dynamics of teaching, thus making their classes highly interactive. Also, Assistant Lecturers are most likely to put in a lot of zeal, being relatively new on the job, hence, relate more with the students and may not yet be saddled with more responsibilities. They may also want to show that they are competent in the work they are employed to carry out. On the other hand, the low rating of Principal Lecturer could be that they have no reason to convince anyone of their competencies anymore and again they may be involved in one programme or the other within or outside the college. In addition, they may be more overburdened with administrative work that may occupy most of their time and hence might not have enough time to prepare and teach their students.

The pattern of teaching effectiveness of lecturers in Colleges of Education as assessed by the students from different schools revealed that School of Science students gave the highest mean rating with regard to classroom interaction followed by the School of Languages. School of Education as well as School of Vocational and Technical Education have the same rating

while the students from the School of Arts and Social Sciences gave the least rating value. Science is being conceived presently from the practical orientation perspective in which there should be active interaction of students with their peers, resources and materials as well as their lecturers who are supposed to act more as facilitators than lecturers. This implies that students from School of Science in the Colleges of Education are already introduced to various forms of classroom interaction, which made them able to identify the factors responsible for classroom interaction and as such were able to rate their lecturers accordingly. This is in contrast to what happens in the School of Languages, where students are involved in extensive communication rather than hands – on activities. To those students, their lecturer's teaching was more or less interactive.

School of Arts and Social Sciences gave the lowest rating to their lecturers. This could be explained from the viewpoint that arts students are trained to be more critical and probably what constitutes an effective interaction for science students may not constitute an effective interaction for them. This study was contrary to the findings of Money (1992). Out of 138 students spanned across faculties, results revealed that no significant difference was found in the ratings by students from different faculties while Kaufman (2002) supported the result of this study. His findings revealed that the faculties/schools of the students influenced their ratings and perceptions of lecturers.

Also, there was a significant mean difference in students' ratings from the various schools in Colleges of Education, and this is collaborated in the literature (Bassow, 1995; Kaufman, 2002; Marsh and Bailey, 1993). Information that could be gleaned based on further analysis is that mean ratings of classroom interaction for lecturers by the students in arts and social sciences is significantly higher when compared to students from education, languages and sciences and this is responsible mainly for the significant difference obtained.

On the basis of gender, there was no significant difference in students' rating of their lecturers with regard to classroom interaction. Lecturers' classroom interaction was rated about the same way, irrespective of gender dichotomy. This finding is contrary to those of Boggs and Wiseman, (1995); and Chang, (1997). Chang, (1997)'s study which examined the effect of gender on students' rating, revealed that male students rated male lecturers higher than their female counterparts. Similarly, Boggs and Wiseman (1995) found out that there was presence of subtle gender biases in the overall students' evaluation.

Furthermore, in this study, significant mean differences were observed for classroom interaction with regards to students' age and course of study. In the related study conducted by Martins and Smith (1990), results indicated that higher ratings occurred among the middle aged, although there was no significant main effect on students' evaluation due to the students' age. Further analysis showed that there was a significant mean difference especially when Economics/History students are compared to Political science/Social studies students while, no significant mean difference was observed when compared to Primary Education/English Language students. Political Science/Social Studies students' view of their lecturers' classroom interaction is significantly lower than that of other students from the following course combinations: English Language/Political science, English language/Yoruba, Yoruba/French; Biology/Chemistry; and Integrated science/Biology.

This result shows that there is variation in students' ratings across different course combinations. This result is supported by the work of Freedman (1994) who investigated the effect of course on students' evaluation. This result showed that the students' rating depended on different courses offered by the students. Lecturers' classroom interaction shows significant mean difference based on students' year of study, however, students' year of study does not significantly influence ratings of their lecturer's evaluation, personality and preparation component of teaching effectiveness. This finding is supported by Farah and Highly (1995). Different levels of undergraduate and graduate students were used to assess teaching effectiveness; results indicated differences in ratings due to year of study. On the other hand, Schuman (1993) submitted in his study that there was no significant difference in rating as all responses indicated comparable scores on measure of teaching effectiveness.

Students' evaluation of lecturers' teaching effectiveness does not vary across lecturers' gender, rank, age and year of experience in terms of the four components of teaching effectiveness. This implies that the mean ratings of lecturers' classroom interaction by their students are independent of lecturer's rank, age and year of experience.

Evaluation

Thirteen items loaded on component 2 which is tagged evaluation. In the study carried out by Chang (1997), using a sample of 9,843 undergraduate students, four factors were extracted, namely preparation/planning, material/content, method/skills and assignment/ examination. Examination/assignment obtained by Chang (1997) could also be likened to evaluation extracted in this study as both components centre on establishing the outcome of a teaching-learning system, even though evaluation completely subsumes examination/assignment. The psychometric property of evaluation scale using Cronbach alpha for the determination of internal consistency gives a value of 0.7187 which is an indication that it is reliable. This is based on the fact that it accounts for over 50 % of shared variance between the obtained score and the true score.

In this study, the students' pattern of evaluation component of teaching effectiveness based on the rank of lecturers shows that Lecturers III are rated highest by the students, while Chief Lecturers are rated least by the students. Lecturers II, I and Senior Lecturers are rated higher than Assistant Lecturers and Principal Lecturer. Two reasons may likely explain this pattern. First, there seems to be an inverse relationship between rank of lecturers and the scores they award students in their courses. That is, with increase in lecturer's rank, students tend to be awarded lower scores in courses taken by the lecturers. Dunkins (1990) supported these findings. He observed in his findings that teaching experience had indirect effect on students' evaluation. In other words, the rank of the lecturers affected students' evaluation.

Similar study conducted by Anderson and Freidberg (1995) supported the preceding findings. This may be explained from the viewpoint that as a lecturer increases in rank, he/she becomes stricter with awarding marks or becomes more creative or conservative in evaluation mode and the consequence is that scores obtained on courses taken do not reflect the yearnings or aspirations of the students and since this affects the grade they come out with, it tends to affect negatively the way they rate such lecturer. Secondly, there is a tendency that the higher the lecturers' rank, which comes with increase in administrative work, the lower the time available to effectively evaluate the students, and the consequence is that the students view the lecturers as not doing well enough in assessments/evaluation procedures. On this basis, it appears the students' ratings are objective.

Lecturers' teaching effectiveness with regard to evaluation shows that vocational and technical education students gave the highest ratings, and this was followed closely by ratings of students from the School of Languages. Students from the School of Arts and Social Sciences rated their lecturers least. The field of vocational and technical education involves more of application and 'hands-on' activities which make the students express their technical abilities, therefore students have the impression that the evaluation mode of their lecturers are the best. The ratings by the students from the School of Arts and Social Sciences are indication of the fact that the evaluation mode of their lecturers is not too satisfactory to them.

In addition, this research found out that significant mean difference exists in the lecturers' evaluation among the schools in colleges. Students from the various schools in Colleges of Education view their lecturers' mode of evaluation the same way. This implies that there is no statistically mean difference in students' ratings of their lecturers among the different schools. This indicates that preparation and evaluation form the essential parts of lecturing in any citadel of learning. This is in line with Money's (1992) submission that there is no significant difference in the ranking of lecturers as rated by the students from the faculties of Nursing and Technology.

Furthermore, this research shows that there is significant mean difference in students' ratings of their lecturers' evaluation according to the students' gender. The result indicates that the way students rate their lecturers' teaching effectiveness in terms of evaluation is independent of the students' gender. This finding is contrary to findings of Chang, (1997); and Krah and Bowlby, (1997).

The influence of course of study, age and year of study on lecturers' teaching effectiveness was also carried out. There exists a significant mean difference in students' ratings of their lecturers' evaluation based on the students' age. With regard to year of study, there exists no significant mean difference in students' ratings of their lecturers' evaluation, and this is supported by Goldberg and Callanhan; and James, (1991). However, this is contrary to the findings of Stanton (1994) and Stringer and Irwing (1998). They confirmed in their study that students' course of study appeared as very influential on students' rating of teaching effectiveness.

Students' evaluation of teaching effectiveness varied significantly across lecturers' gender, rank, age and years of experience under evaluation component. Lecturers' gender, rank, age and years of experience do not influence students' evaluation of their teaching effectiveness.

This implies that students' rating of lecturers' teaching effectiveness is not a function of their personal characteristics and this confers some objectivity on the students' ratings.

Personality

Fourteen items loaded on the component of teaching effectiveness tagged personality. Personality as a component has the second highest items after classroom interaction, and this shows its relevance in determining lecturers' teaching effectiveness. The psychometric property of personality scale using Cronbach alpha for the determination of internal consistency gives a value of 0 .7185 which is an indication that it is reliable. This is based on the fact that it also accounts for over 50% of shared variance. Standard error of measurement is another reliability index used in this study for confirmation. In the case of personality component, the true score would lie between 42 and 72 to the nearest whole number at 95% confidence interval.

The pattern of personality component of teaching effectiveness scale reveals that Lecturer 1 has the highest mean rating by the students and this is followed closely by Principal Lecturer. Lecturers 1 are at the fourth level of the 7 point scale used for ranking the status of lecturers in Colleges of Education. Most likely they must have mastered all that is required to move up the ladder in terms of promotion. They are fully aware of the college rules and probably may not like to flout them. On the other hand, Chief Lecturers are at the peak of their career and are mainly part of management. To the students, Chief Lecturers may appear harsh and as such, students may not rate them very high in terms of personality. In addition, they may not be directly accessible to the students and this may have a bearing in the way students also view their personality.

Principal Lecturer and Assistant Lecturers are also rated very high in terms of personality. Principal Lecturers are expected to display friendly disposition as they aspire to a higher status. Assistant Lecturers on the other hand, may want to feel loved by people around them, thus they tend to put up a good image around themselves even if this is temporary. In addition, they may want to do everything possible to make the regularization and the confirmation of their appointment possible.

Furthermore, this research found out that students from the School of Science rated lecturers' personality higher, and this is followed by students from the School of Languages. Students from the School of Vocational and Technical Education gave the least ratings. This

indicates that students from the School of Science do have good relationship with lecturers because of their interaction most especially during practical. One could have probably guessed that students from the School of Vocational and Technical Education would follow the pattern observed among science students due to some kind of similarities in the two fields of studies.

There exists a significant mean difference in lecturers' personality. This is supported by evidence from literature by Bassow, (1995); Kaufman, (2002) and Stringer and Irwing, (1998). This research also found out that there is a significant mean difference in students' ratings of their lecturers' personality according to their gender. The result indicates that the way students rated their lecturers' teaching effectiveness in terms of personality is dependent on their gender, as female students seem more objective or stricter in their sense of judgment of teaching effectiveness as compared to male students. Literature (Amin, 1994; Lueck, 1993 and Tatto, 1995) is replete with evidences in support of this finding by Moreover, the influence of course of study, age and year of study on lecturers' personality shows that students' age and year of study do not influence their lecturers' personality; while on the other hand, students' course of study has an influence on ratings of teaching effectiveness.

Students' evaluation of lecturers' personality across lecturers' gender, rank, age and year of experience as shown in this study revealed that age and rank of lecturers do not have any influence on lecturers' teaching effectiveness. Moreover, year of experience and gender of lecturers do not have any influence on students' ratings of lecturers' personality.

Preparation

Eight items loaded on component four which is named ***Preparation***. The psychometric property of ***Preparation*** scale using Cronbach alpha for the determination of internal consistency gives a value of 0.7189 which is the highest in all the scales extracted, and it gives an indication that it is reliable. This is based on the fact that it also accounts for over 50% of shared variance. Standard error of measurement is another reliability index used in this study. In the case of preparation component, the true score would lie between 22 and 43 to the nearest whole number at 95% confidence interval.

Lecturers' ***Preparation*** component of teaching effectiveness shows that lecturers 1 are the most highly rated because they have been teaching for a while and so they might have mastered and have been accustomed to teaching pattern. This is followed closely by Assistant

Lecturer, Lecturer III, Senior Lecturer and Chief Lecturer. Principal Lecturer are the least rated under this category. It can be understood that there is a huge tendency for Principal Lecturer to be more occupied in terms of teaching assignment as well as administrative work as there is a high probability that Chief Lecturers could have shelved some of the teaching commitments to the Principal Lecturer who are next in rank to them.

There is a significant mean difference in lecturers' preparation across the five schools in the Colleges of Education. Mode of preparation of lecturers as rated by students from different schools does not differ significantly and this is supported by Money (1992) who found no significant difference in the rank of lecturers and rating of students.

There is also a significant mean difference in students' ratings of their lecturers' preparation according to their gender. The result indicates that students' ratings of their lecturers' teaching effectiveness in terms of preparation vary across their lecturers' gender. This finding corroborates the findings of Chang, (1997); and Krah and Bowlby, (1997).

In terms of lecturers' preparation, students' age, year of study and gender do not influence the ratings. This implies that irrespective of students' age, course of study and year of study, they appear not to be biased in their ratings of lecturers' teaching effectiveness.

However, students' evaluation of lecturers' teaching effectiveness varied significantly across lecturers' rank, age, years of experience and gender with respect to ***Preparation***. Students' evaluation of their lecturers' teaching effectiveness varies across lecturers' rank and year of experience. Further analysis showed that the significant mean difference occurs between Lecturers 1 and Principal Lecturers. This shows that Principal Lecturers' preparation is rated lower than that of Lecturer 1.the results also indicates the Lecturers' preparation does not vary significantly based on their age and gender as viewed by their students. This shows that Lecturers I put in more effort in preparation for teaching than Principal Lecturers.

CHAPTER FIVE

SUMMARY OF THE FINDINGS, CONCLUSION, RECOMMENDATION AND SUGGESTION FOR FURTHER STUDIES

5.1 Summary of the Findings

Using principal component analysis, four components were reliably extracted from the original one-hundred and twenty one items of SETES-CE, 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.

Lecturers 1 were rated highest with regards to classroom interaction, while Principal Lecturers received the least mean ratings in the area of ***Classroom interaction*** as rated by their students. In the case of ***Evaluation***, Lecturers III received the highest mean rating and Chief Lecturer the least when rated by the students. The ratings with respect to ***Personality*** component of teaching effectiveness indicate Lecturers 1 having the highest rating while Lecturers III and Chief Lecturers together had the least rating. As for lecturers' preparation, Lecturers I has the highest rating while Principal Lecturers has the least rating.

Pattern of teaching effectiveness with regards to schools in Colleges of Education used in this study under ***Classroom Interaction*** indicates that School of Science students have the highest rating of the lecturers, while School of Vocational and Technical Education has the least rating. In the case of evaluation component, students from School of Languages and School of Vocational and Technical Education gave the highest rating value to the lecturer's while students from School of Arts and Social Sciences gave the least rating value. The students from the School of Science gave the highest ratings, while students from school of education and School of Vocational and Technical Education gave the least ratings. In the case of preparation component of teaching effectiveness, students from the School of Vocational and Technical Education gave the highest rating, while those from the School of Science gave the least.

The ***Personality*** component of lecturers as rated by their students showed significant mean differences at the different schools in Colleges of Education. ***Evaluation*** and ***Preparation*** components of lecturers' teaching effectiveness as rated by the students from different schools show no significant difference. Gender of students has an influence only on the ***Personality*** component of lecturers' teaching effectiveness. Gender of students does not have any influence on the lecturers' ***Classroom Interaction, Evaluation*** and ***Preparation***.

Course of study of students influenced their rating in term of lecturers' ***Classroom Interaction, Evaluation*** and ***Preparation***. On the other hand, course of study of students does not have any influence on the lecturers' preparation. Age of students has influence on their ratings of lecturers' classroom interaction and evaluation of teaching effectiveness, while age of students was found to have no influence on their rating of lecturers' personality and preparation. The year of study of students has influence only on the lecturers' classroom interaction; while it was revealed that the year of study of students does not in any way influence the lecturers' evaluation, preparation and personality.

Students' evaluation of lecturers' teaching effectiveness varied significantly across lecturers' rank, age, years of experience and gender with respect to preparation. Students' evaluation of their lecturers' teaching effectiveness varied across lecturers' rank and year of experience. Further analysis showed that the significant mean difference occurs between Lecturers 1 and Principal Lecturers. This shows that Principal Lecturers' preparation is rated lower than that of Lecturers 1. Lecturers' preparation does not vary significantly based on their age and gender as viewed by their students. This shows that Lecturers I put in more effort in preparation for teaching than Principal Lecturers.

5.2 Conclusion

The constructed Students' Evaluation of Teaching Effectiveness Scale 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.

5.3 Implication for Teaching

This study has implication for teaching if the outcome is made known to relevant stakeholders in Colleges of Education. First, it has the promise of rejuvenating the teaching-learning process. It does this by giving feedback to lecturers based on their performances with regards to their classroom interaction, evaluation, personality and preparation components of teaching effectiveness. In addition, it gives them the feelings that they are being monitored and have to do things accordingly. Second, interaction in a classroom is a dynamic process which gives primacy to meaningful participation on the part of the students and through which their problems can be identified and probably remedied. An improvement in classroom interaction is most likely to bring about meaningful learning, discourage rote learning and bring about improvement in achievement.

Preparation is a worthwhile exercise prior to meaningful delivery. A lecture haphazardly prepared is a lecture that will most likely be poorly delivered. If lecturers are too loaded with academic and administrative work, there is a huge tendency that they will be lacking in proper preparation and the consequence is a lecture that does not have much impact on the learning of students. The aforementioned are some of the implications for teaching which need to be carefully considered.

5.4 Recommendations

It is recommended that this SETES-CE 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.

5.5 Suggestion for Further Studies

It is suggested that this study be replicated elsewhere to corroborate or refute some of the findings in this study. In addition, a confirmatory factor analysis should be carried out on this study in which variables are meticulously considered in order to accurately depict the underlying processes- the purpose of which to confirm or disconfirm- some a priori theory. A non-recursive structural equation modeling could also be considered in which lecturers' parameters are considered as variables, students' parameters are considered as variables, and institutional variables are also considered in a bi-directional causal flow with teaching effectiveness, acting as a moderator variable and its effect upon a standardized achievement score of students probably on a uniform average grade point could be considered.

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APPENDIX 1

INTERNATIONAL CENTRE FOR EDUCATIONAL EVALUATION
INSTITUTE OF EDUCATION
UNIVERSITY OF IBADAN

STUDENTS' EVALUATION OF TEACHING EFFECTIVENESS SCALE (SETES-CE)

INTRODUCTION:

This scale is developed to evaluate the teaching effectiveness of lecturers teaching various courses in colleges of education. You are required to put a mark ( ) in the appropriate boxes.

SECTION A

Students' Age (As at last birthday) _____

Sex: Male [ ] Female [ ]

School: _____

Course of Study: _____

Year of Study: Year Two [ ] Year Three [ ]

Type of College: Federal [ ] State [ ]

Name of the lecturer: _____

Title of the Course: _____

SECTION B

INSTRUCTION:

The underlisted are some of the items considered to make the teaching of a lecturer effective. Read through each of the items and think of a good lecturer among those teaching you in this semester and rate that lecturer. The 5 – point scales are as follows:

Very Poor (1); Poor (2); Moderate (3); Good (4); Very Good (5)

S/N	ITEMS	1	2	3	4	5
1.	Has knowledge of the course being taught					
2.	Adequate time distribution					
3.	Fair in award of marks to students					
4.	Gives adequate feedback to students					
5	Understands the course material					
6	Gives students assignment					
7	Possesses an audible voice					
8	Uses variety of assignment/examination to judge performance					
9	Use of verbal and non verbal communication					
10	Has unique ways of distributing questions to students					
11	Gives opportunity to every students.					
12	Accepts students' opinion					
13	Uses non verbal communication during teaching					
14	Considers population of the class					
15	Provides adequate lecture materials for the course					
16	Creates learning environment that encourage self motivation.					
17	Communicates appropriately with students					
18	Use of entire time for effective teaching					
19	Gives more extended project to stimulate interest					
20	Use of appropriate words during teaching					
21	Allows students to brainstorm on questions raised during lesson					
22	Ensures appropriate sitting arrangement during lecture					
23	Gives adequate feedback to students					

24	Releases examination result on time					
25	Encourages and facilitates appointment with students					
26	Has unique way of facilitating learning					
27	Smart dressing					
28	Adequate control of the class.					
29	Timeliness in the use of teaching methods					
30	Use of instructional materials					
31	Quality of instructional materials					
32	Creates learning environment that encourage active engagement.					
33	Creates learning experiences that make subject matter meaningful for students					
34	Carry students along during teaching					
35	Understands and uses variety of instructional strategies					
36	Starts teaching from simple to complex					
37	Encourage students' participation in group discussion					
38	Appropriateness of the location of the college					
39	Concludes the lesson in a clear term					
40	Creates learning experiences that makes subject matter meaningful for students					
41	Understands and uses variety of instructional strategies					
42	Has self – control					
43	Follows syllabus strictly					
44	Revises lectures in terms of evaluation					
45	Possesses an audible voice					
46	Uses adequate examples during teaching					
47	Demands for compulsory attendance at the lectures					
48	Designs class activities that stimulate curiosity					
49	Presents lecture in a way that facilitate notes taking					
50	Uses variety of teaching methods during teaching					
51	Discusses current development in the field of study					
52	Provides relevant references during teaching					
53	Creates learning environment that encourages self motivation.					

54	Follows syllabus strictly					
55	Creates learning environment that encourages positive social interactions					
56	Fluent in speaking					
57	Use of appropriate teaching methods					
58	Adequacy of instructional materials to teaching					
59	Alert and enthusiastic about teaching the course					
60	Dynamic and energetic in conducting the lecture					
61	Dedicated to teaching profession					
62	Has knowledge of learners and their characteristics					
63	Clear explanation of the lecture					
64	Encourages students' participation during teaching					
65	Uses short sentences in explaining terms					
66	Prepares course material for the course					
67	Appropriate planning of the lesson ahead of time					
68	Use of good examples during teaching					
69	Has genuine interest in individual student					
70	Welcomes students' idea and advice					
71	Has appropriate method of evaluating students' work					
72	Dynamic in conducting the lecture					
73	Enthusiastic about teaching the course					
74	Patient in attending to students' need					
75	Use of entire time for effective teaching					
76	Adequate implementation of the course outline					
77	Demonstrates the knowledge of the subject matter					
78	Enhances presentation with the use of humor					
79	Stimulates thinking skills of students					
80	Uses lecture method during presentation					
81	Has unique ways of distributing questions to students					
82	Encourages students' development of critical thinking.					
83	Presents the lesson in a clear term					

84	Gives equal opportunity to students during lecture					
85	Develops examination questions that are related to the course content					
86	Gives exercises during lesson					
87	Renders help willingly to students					
88	Displays professionalism					
89	Gives course assignments that are clear and precise					
90	Possesses self discipline					
91	Admired by professional colleague					
92	Optimistic to assist students					
93	A role model in the society					
94	Punctual in teaching the course					
95	Has self – control					
96	Has appropriate method of evaluating students' work					
97	Has appropriate way of conducting continuous assessment					
98	Has appropriate skill in the setting of examination questions					
99	Gives exercises during lesson					
100	Develops examination questions that are related to the course content					
101	Uses illustration during teaching					
102	Adequate implementation of the course outline					
103	Starts and ends lecture on time					
104	Relates well with other colleagues and agencies to support students' learning					
105	Competent in the field of study					
106	Has unique way of facilitating learning					
107	Appropriate planning of the lesson ahead of time					
108	Has a sense of homour					
109	Patience in attending to students' need					
110	Appreciates students' idea					
111	Clarifies students' questions					
112	Has knowledge of educational purpose and values					
113	Relates course content to other fields and real life situation					

APPENDIX 2

INTERNATIONAL CENTRE FOR EDUCATIONAL EVALUATION
INSTITUTE OF EDUCATION
UNIVERSITY OF IBADAN

STUDENTS' EVALUATION OF TEACHING EFFECTIVENESS SCALE (SETES-CE)

INTRODUCTION:

This scale is developed to evaluate the teaching effectiveness of lecturers teaching various courses in colleges of education. You are required to put a mark ( ) in the appropriate boxes.

SECTION A

(This section is to be completed by the student)

Students' Age (As at last birthday) _____

Sex: Male [ ] Female [ ]

School: _____

Course of Study: _____

Year of Study: Year Two [ ] Year Three [ ]

Type of College: Federal [ ] State [ ]

Name of the lecturer: _____

Title of the Course: _____

SECTION B
(This section is to be completed by the Researcher)

Rank of the Lecturer:_____

Gender of the Lecturer:_____

Age of the Lecturer:_____

Year of experience of the Lecturer:_____

Year of Course being taught:_____

SECTION C
(This section is to be completed by the student)

INSTRUCTION:

Please you are to carefully read through the items in Section C and place a tick( ) on the appropriate column that indicates the teaching effectiveness of the identified lecturer. Thank you so much for your highly valued cooperation.

The underlisted are some of the items considered to make the teaching of a lecturer effective. Read through each of the items and think of a good lecturer among those teaching you in this semester and rate that lecturer. The 5 – point scales are as follows:

Very Poor (1); Poor (2); Moderate (3); Good (4); Very Good (5)

S/N	ITEMS	1	2	3	4	5
CLASSROOM INTERACTION						
1.	Adequate time distribution					
2.	Understands the course material					
3.	Accepts students' opinion.					
4.	Uses non verbal communication during teaching					
5	Communicates appropriately with students					
6	Use of entire time for effective teaching					
7	Use of appropriate words during teaching					
8	Ensures appropriate sitting arrangement during lecture					
9	Creates learning experiences that make subject matter meaningful for students					
10	Carry students along during teaching					
11	Understands and uses of variety of instructional strategies					
12	Starts teaching from simple to complex					
13	Encourages students' participation in group discussion					
14	Concludes the lesson in a clear term					
15	Uses adequate examples during teaching					
16	Designs class activities that stimulate curiosity					
17	Presents lecture in a way that facilitates notes taking					
18	Uses variety of teaching methods during teaching					
19	Discusses current development in the field of study					

20	Provides relevant references during teaching					
21	Fluent in speaking					
22	Use of appropriate teaching methods					
23	Adequacy of instructional materials to teaching					
24	Encourages students' participation during teaching					
25	Uses short sentences in explaining terms					
26	Demonstrate the knowledge of the subject matter					
27	Enhances presentation with the use of humor					
28	Stimulates thinking skills of students					
29	Use lecture method during presentation					
30	Has unique ways of distributing questions to students					
31	Encourages students' development of critical thinking.					
32	Presents the lesson in a clear term					
33	Gives equal opportunity to students during lecture					
34	Uses illustration during teaching					
35	Adequate implementation of the course outline					
36	Starts and ends lecture on time					
37	Relates course content to other fields and real life situation					
38	Appropriate planning of the lesson ahead of time					
EVALUATION						
1	Fair in award of marks to students					
2	Gives adequate feedback to students					
3	Gives students assignment					
4	Uses variety of assignment/examination to judge performance					
5	Gives more extended project to stimulate interest					
6	Allows students to brainstorm on questions raised during lesson					
7	Releases examination result on time					
8	Has appropriate method of evaluating students'work					
9	Has appropriate way of conducting continuous assessment					

10	Has appropriate skill in the setting of examination questions					
11	Gives exercises during lesson					
12	Develops examination questions that are related to the course content					
13	Clarifies students' questions					
PERSONALITY						
1	Has unique way of facilitating learning					
2	Smart dressing					
3	Possesses an audible voice					
4	Dedicated to teaching profession					
5	Has knowledge of learners and their characteristics					
6	Dynamic in conducting the lecture					
7	Enthusiastic about teaching the course					
8	Patience in attending to students' need					
9	Possesses self discipline					
10	Admired by professional colleagues					
11	Optimistic to assist students					
12	A role model in the society					
13	Punctual in teaching the course					
14	Has self – control					
PREPARATION						
1	Considers population of the class					
2	Provides adequate lecture materials for the course					
3	Creates learning environment that encourages active engagement.					
4	Creates learning environment that encourages self motivation.					
5	Follows syllabus strictly					
6	Creates learning environment that encourages positive social interactions					
7	Prepares course material for the course					
8	Appropriates planning of the lesson ahead of time					

APPENDIX 3:
FACTOR LOADING OF STUDENTS' EVALUATION OF TEACHING EFFECTIVENESS SCALE

Component Matrix[a]

	Component			
	1	2	3	4
item48	.394	-.253		
item34	.427			-.261
item83	.467	.233		
item81	.537	.238	-.223	
item12	.409			-.225
item17	.461	-.224	-.202	
item52	.330			
item57	.369			
item64	.420			
item58	.366			
item33	.321			
item35	.404		-.205	
item101	.426			
item78	.441			
item80	.420			
item49	.333			
item37	.312			
item46	.340			
item51	.405			
item113	.451			
item79	.586			
item50	.385			
item77	.317			
item38				
item104				
item47				
item63				
item76				
item60				
item89				
item75				
item40				
item107				
item59				
item88				
item105				
item4		.554		
item23	.211	-.274		.266
item98		.478		
item65	.486	-.266		.214
item5	.601	-.261		.241
item102	.463	-.258		
item97		.444		
item3		.389		
item84	.454	-.250		
item96		.413		

item6		.579		
item82	.504	-.241		
item100		.475		
item2	.378	-.228		
item99		.641		
item103	.451	-.222		
item8		.323		
item111		.315		
item19		.559		
item109				
item112				
item16				
item85				
item108				
item87				
item93			.680	
item94			.678	
item92			.425	
item95			.495	
item91			.462	
item73			.596	
item72			.404	
item27			.345	
item18	.531	-.203	-.243	
item36	.392		-.242	
item90			.347	
item61			.586	
item74			.343	
item62			-.210	
item45			.369	
item26			.586	
item71				
item28				
item20	.604			-.354
item13	.553			-.341
item14				.487
item22	.543	-.204		-.281
item39	.422			-.279
item21		.565	-.226	-.264
item55				-.260
item56	.396			-.254
item32				.368
item53				.420
item54				.390
item15				.343
item24		.359		.220
item66				.661
item67				.442
item68				
item30				
item29				

Extraction Method: Principal Component Analysis.

a. 4 components extracted.

APPENDIX 4

Item-Total Statistics of 113 items

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
item1	458.22	219.071	.091	.720
item2	458.26	217.508	.157	.718
item3	458.27	218.462	.116	.719
item4	458.28	217.986	.135	.718
item5	458.31	217.927	.150	.718
item6	458.28	217.741	.151	.718
item7	458.27	219.305	.079	.720
item8	458.28	217.548	.167	.717
item9	458.24	219.046	.090	.720
item10	458.24	218.960	.093	.719
item11	458.17	218.920	.098	.719
item12	458.26	217.424	.172	.717
item13	458.29	217.264	.169	.717
item14	458.29	218.080	.128	.718
item15	458.23	218.822	.106	.719
item16	458.24	218.793	.105	.719
item17	458.26	217.606	.159	.718
item18	458.26	217.268	.156	.718
item19	458.26	218.652	.117	.719
item20	458.30	217.975	.144	.718
item21	458.30	218.148	.126	.718
item22	458.33	217.658	.145	.718
item23	458.31	217.364	.172	.717
item24	458.25	217.719	.159	.718
item25	458.22	219.917	.053	.721
item26	458.23	218.563	.114	.719
item27	458.19	218.404	.122	.719
item28	458.21	218.694	.110	.719
item29	458.26	218.874	.104	.719
item30	458.23	218.876	.100	.719
item31	458.22	219.389	.079	.720
item32	458.22	218.637	.117	.719
item33	458.27	217.698	.153	.718
item34	458.22	217.059	.173	.717
item35	458.25	217.947	.138	.718
item36	458.32	217.895	.136	.718
item37	458.25	217.882	.136	.718
item38	458.27	217.803	.140	.718

item39	458.26	217.736	.155	.718
item40	458.27	218.506	.118	.719
item41	458.29	219.235	.087	.720
item42	458.27	219.056	.096	.719
item43	458.25	219.321	.079	.720
item44	458.25	219.113	.091	.719
item45	458.22	218.392	.120	.719
item46	458.25	217.344	.168	.717
item47	458.28	218.011	.139	.718
item48	458.30	216.243	.218	.716
item49	458.32	217.958	.141	.718
item50	458.26	217.841	.147	.718
item51	458.24	217.945	.138	.718
item52	458.29	218.003	.141	.718
item53	458.26	218.654	.107	.719
item54	458.28	218.511	.114	.719
item55	458.27	218.824	.103	.719
item56	458.24	217.591	.158	.718
item57	458.27	217.589	.156	.718
item58	458.32	217.603	.159	.718
item59	458.24	218.829	.104	.719
item60	458.23	218.370	.119	.719
item61	458.25	218.204	.136	.718
item62	458.24	218.309	.124	.719
item63	458.26	218.561	.113	.719
item64	458.30	217.451	.165	.717
item65	458.28	217.797	.145	.718
item66	458.30	218.509	.117	.719
item67	458.26	218.302	.124	.719
item68	458.23	218.708	.112	.719
item69	458.24	218.911	.098	.719
item70	458.21	219.541	.068	.720
item71	458.21	218.044	.136	.718
item72	458.25	217.919	.145	.718
item73	458.28	218.352	.121	.719
item74	458.24	218.274	.123	.719
item75	458.25	218.448	.120	.719
item76	458.23	218.443	.121	.719
item77	458.24	218.372	.126	.718
item78	458.29	217.517	.159	.718
item79	458.24	218.031	.132	.718
item80	458.27	217.894	.142	.718
item81	458.30	217.545	.154	.718
item82	458.28	217.899	.139	.718

item83	458.31	217.381	.167	.717
item84	458.29	217.760	.150	.718
item85	458.29	218.595	.112	.719
item86	458.28	219.334	.077	.720
item87	458.27	218.833	.101	.719
item88	458.25	218.773	.103	.719
item89	458.27	218.118	.129	.718
item90	458.26	218.369	.123	.719
item91	458.25	218.267	.126	.718
item92	458.32	218.391	.125	.719
item93	458.29	218.218	.122	.719
item94	458.27	218.522	.116	.719
item95	458.23	218.217	.132	.718
item96	458.26	218.351	.123	.719
item97	458.28	218.317	.123	.719
item98	458.27	218.243	.122	.719
item99	458.27	218.522	.118	.719
item100	458.27	218.524	.116	.719
item101	458.25	217.490	.163	.717
item102	458.26	218.484	.116	.719
item103	458.26	218.396	.130	.718
item104	458.23	218.227	.131	.718
item105	458.23	219.402	.077	.720
item106	458.21	217.850	.147	.718
item107	458.23	218.321	.125	.719
item108	458.22	218.943	.099	.719
item109	458.23	218.853	.102	.719
item110	458.24	219.003	.096	.719
item111	458.24	218.576	.112	.719
item112	458.23	218.421	.121	.719
item113	458.28	217.693	.151	.718

APPENDIX 5

Multiple Comparisons for Years of Experience

Preparation

Scheffe

(I) lecturer,s year of exp	(J) lecturer,s year of exp	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
2	3	-.67000	.39186	.992	-2.4111	1.0711
	5	-.30108	.32050	1.000	-1.7251	1.1229
	8	.00000	.39186	1.000	-1.7411	1.7411
	10	-.81000	.39186	.961	-2.5511	.9311
	11	-.35500	.33936	1.000	-1.8629	1.1529
	12	-.13500	.33936	1.000	-1.6429	1.3729
	16	-.69680	.39488	.989	-2.4513	1.0577
	18	.44000	.39186	1.000	-1.3011	2.1811
	20	.20708	.39593	1.000	-1.5521	1.9663
	25	-.25000	.39186	1.000	-1.9911	1.4911
	33	-.33458	.39593	1.000	-2.0938	1.4246
3	2	.67000	.39186	.992	-1.0711	2.4111
	5	.36892	.32050	1.000	-1.0551	1.7929
	8	.67000	.39186	.992	-1.0711	2.4111
	10	-.14000	.39186	1.000	-1.8811	1.6011
	11	.31500	.33936	1.000	-1.1929	1.8229
	12	.53500	.33936	.996	-.9729	2.0429
	16	-.02680	.39488	1.000	-1.7813	1.7277
	18	1.11000	.39186	.711	-.6311	2.8511
	20	.87708	.39593	.935	-.8821	2.6363
	25	.42000	.39186	1.000	-1.3211	2.1611
	33	.33542	.39593	1.000	-1.4238	2.0946
5	2	.30108	.32050	1.000	-1.1229	1.7251
	3	-.36892	.32050	1.000	-1.7929	1.0551

	8	.30108	.32050	1.000	-1.1229	1.7251
	10	-.50892	.32050	.996	-1.9329	.9151
	11	-.05392	.25363	1.000	-1.1808	1.0730
	12	.16608	.25363	1.000	-.9608	1.2930
	16	-.39572	.32418	1.000	-1.8361	1.0447
	18	.74108	.32050	.913	-.6829	2.1651
	20	.50816	.32545	.996	-.9379	1.9542
	25	.05108	.32050	1.000	-1.3729	1.4751
	33	-.03350	.32545	1.000	-1.4795	1.4125
8	2	.00000	.39186	1.000	-1.7411	1.7411
	3	-.67000	.39186	.992	-2.4111	1.0711
	5	-.30108	.32050	1.000	-1.7251	1.1229
	10	-.81000	.39186	.961	-2.5511	.9311
	11	-.35500	.33936	1.000	-1.8629	1.1529
	12	-.13500	.33936	1.000	-1.6429	1.3729
	16	-.69680	.39488	.989	-2.4513	1.0577
	18	.44000	.39186	1.000	-1.3011	2.1811
	20	.20708	.39593	1.000	-1.5521	1.9663
	25	-.25000	.39186	1.000	-1.9911	1.4911
	33	-.33458	.39593	1.000	-2.0938	1.4246
10	2	.81000	.39186	.961	-.9311	2.5511
	3	.14000	.39186	1.000	-1.6011	1.8811
	5	.50892	.32050	.996	-.9151	1.9329
	8	.81000	.39186	.961	-.9311	2.5511
	11	.45500	.33936	.999	-1.0529	1.9629
	12	.67500	.33936	.971	-.8329	2.1829
	16	.11320	.39488	1.000	-1.6413	1.8677
	18	1.25000	.39186	.515	-.4911	2.9911
	20	1.01708	.39593	.830	-.7421	2.7763
	25	.56000	.39186	.998	-1.1811	2.3011
	33	.47542	.39593	1.000	-1.2838	2.2346
11	2	.35500	.33936	1.000	-1.1529	1.8629

	3	-.31500	.33936	1.000	-1.8229	1.1929
	5	.05392	.25363	1.000	-1.0730	1.1808
	8	.35500	.33936	1.000	-1.1529	1.8629
	10	-.45500	.33936	.999	-1.9629	1.0529
	12	.22000	.27709	1.000	-1.0112	1.4512
	16	-.34180	.34285	1.000	-1.8651	1.1815
	18	.79500	.33936	.905	-.7129	2.3029
	20	.56208	.34405	.994	-.9666	2.0907
	25	.10500	.33936	1.000	-1.4029	1.6129
	33	.02042	.34405	1.000	-1.5082	1.5491
12	2	.13500	.33936	1.000	-1.3729	1.6429
	3	-.53500	.33936	.996	-2.0429	.9729
	5	-.16608	.25363	1.000	-1.2930	.9608
	8	.13500	.33936	1.000	-1.3729	1.6429
	10	-.67500	.33936	.971	-2.1829	.8329
	11	-.22000	.27709	1.000	-1.4512	1.0112
	16	-.56180	.34285	.994	-2.0851	.9615
	18	.57500	.33936	.992	-.9329	2.0829
	20	.34208	.34405	1.000	-1.1866	1.8707
	25	-.11500	.33936	1.000	-1.6229	1.3929
	33	-.19958	.34405	1.000	-1.7282	1.3291
16	2	.69680	.39488	.989	-1.0577	2.4513
	3	.02680	.39488	1.000	-1.7277	1.7813
	5	.39572	.32418	1.000	-1.0447	1.8361
	8	.69680	.39488	.989	-1.0577	2.4513
	10	-.11320	.39488	1.000	-1.8677	1.6413
	11	.34180	.34285	1.000	-1.1815	1.8651
	12	.56180	.34285	.994	-.9615	2.0851
	18	1.13680	.39488	.687	-.6177	2.8913
	20	.90389	.39891	.924	-.8686	2.6763
	25	.44680	.39488	1.000	-1.3077	2.2013
	33	.36222	.39891	1.000	-1.4102	2.1347

18	2	-.44000	.39186	1.000	-2.1811	1.3011
	3	-1.11000	.39186	.711	-2.8511	.6311
	5	-.74108	.32050	.913	-2.1651	.6829
	8	-.44000	.39186	1.000	-2.1811	1.3011
	10	-1.25000	.39186	.515	-2.9911	.4911
	11	-.79500	.33936	.905	-2.3029	.7129
	12	-.57500	.33936	.992	-2.0829	.9329
	16	-1.13680	.39488	.687	-2.8913	.6177
	20	-.23292	.39593	1.000	-1.9921	1.5263
	25	-.69000	.39186	.989	-2.4311	1.0511
	33	-.77458	.39593	.975	-2.5338	.9846
20	2	-.20708	.39593	1.000	-1.9663	1.5521
	3	-.87708	.39593	.935	-2.6363	.8821
	5	-.50816	.32545	.996	-1.9542	.9379
	8	-.20708	.39593	1.000	-1.9663	1.5521
	10	-1.01708	.39593	.830	-2.7763	.7421
	11	-.56208	.34405	.994	-2.0907	.9666
	12	-.34208	.34405	1.000	-1.8707	1.1866
	16	-.90389	.39891	.924	-2.6763	.8686
	18	.23292	.39593	1.000	-1.5263	1.9921
	25	-.45708	.39593	1.000	-2.2163	1.3021
	33	-.54167	.39994	.999	-2.3187	1.2354
25	2	.25000	.39186	1.000	-1.4911	1.9911
	3	-.42000	.39186	1.000	-2.1611	1.3211
	5	-.05108	.32050	1.000	-1.4751	1.3729
	8	.25000	.39186	1.000	-1.4911	1.9911
	10	-.56000	.39186	.998	-2.3011	1.1811
	11	-.10500	.33936	1.000	-1.6129	1.4029
	12	.11500	.33936	1.000	-1.3929	1.6229
	16	-.44680	.39488	1.000	-2.2013	1.3077
	18	.69000	.39186	.989	-1.0511	2.4311
	20	.45708	.39593	1.000	-1.3021	2.2163

	33	-.08458	.39593	1.000	-1.8438	1.6746
33	2	.33458	.39593	1.000	-1.4246	2.0938
	3	-.33542	.39593	1.000	-2.0946	1.4238
	5	.03350	.32545	1.000	-1.4125	1.4795
	8	.33458	.39593	1.000	-1.4246	2.0938
	10	-.47542	.39593	1.000	-2.2346	1.2838
	11	-.02042	.34405	1.000	-1.5491	1.5082
	12	.19958	.34405	1.000	-1.3291	1.7282
	16	-.36222	.39891	1.000	-2.1347	1.4102
	18	.77458	.39593	.975	-.9846	2.5338
	20	.54167	.39994	.999	-1.2354	2.3187
	25	.08458	.39593	1.000	-1.6746	1.8438

APPENDIX 6

MULTIPLE COMPARISM OF TEACHING EFFECTIVENESS COMPONENT BASED ON STUDENTS' AGE

Scheffe

Dependent Variable	(I) students age	(J) students age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Classroom Interaction	15	16	6.66346	3.92410	.996	-11.3614	24.6884
		17	1.90000	3.88789	1.000	-15.9586	19.7586
		18	2.55172	3.84600	1.000	-15.1144	20.2179
		19	2.65517	3.84600	1.000	-15.0110	20.3213
		20	3.08088	3.83656	1.000	-14.5419	20.7037
		21	3.65984	3.84285	1.000	-13.9918	21.3115
		22	3.17262	3.87034	1.000	-14.6054	20.9506
		23	5.30405	3.88221	1.000	-12.5284	23.1365
		24	4.80556	4.18045	1.000	-14.3968	24.0080
		25	-6.00000	6.54950	1.000	-36.0844	24.0844
		26	-4.25000	6.54950	1.000	-34.3344	25.8344
		30	1.75000	5.34765	1.000	-22.8138	26.3138
	16	15	-6.66346	3.92410	.996	-24.6884	11.3614
		17	-4.76346	1.38454	.459	-11.1232	1.5963
		18	-4.11174	1.26212	.563	-9.9092	1.6857
		19	-4.00829	1.26212	.608	-9.8057	1.7891
		20	-3.58258	1.23306	.749	-9.2465	2.0814
		21	-3.00363	1.25248	.928	-8.7567	2.7495
		22	-3.49084	1.33446	.867	-9.6205	2.6388
		23	-1.35941	1.36850	1.000	-7.6455	4.9266
		24	-1.85791	2.06818	1.000	-11.3579	7.6420
		25	-12.66346	5.44952	.943	-37.6952	12.3683
		26	-10.91346	5.44952	.983	-35.9452	14.1183
		30	-4.91346	3.92410	1.000	-22.9384	13.1114
	17	15	-1.90000	3.88789	1.000	-19.7586	15.9586
		16	4.76346	1.38454	.459	-1.5963	11.1232
		18	.65172	1.14461	1.000	-4.6059	5.9093

	19	.75517	1.14461	1.000	-4.5024	6.0128
	20	1.18088	1.11248	1.000	-3.9292	6.2909
	21	1.75984	1.13396	.998	-3.4489	6.9686
	22	1.27262	1.22391	1.000	-4.3493	6.8945
	23	3.40405	1.26094	.838	-2.3879	9.1960
	24	2.90556	1.99864	.999	-6.2749	12.0861
	25	-7.90000	5.42350	.999	-32.8122	17.0122
	26	-6.15000	5.42350	1.000	-31.0622	18.7622
	30	-.15000	3.88789	1.000	-18.0086	17.7086
18	15	-2.55172	3.84600	1.000	-20.2179	15.1144
	16	4.11174	1.26212	.563	-1.6857	9.9092
	17	-.65172	1.14461	1.000	-5.9093	4.6059
	19	.10345	.99303	1.000	-4.4579	4.6648
	20	.52916	.95583	1.000	-3.8613	4.9196
	21	1.10811	.98075	1.000	-3.3968	5.6131
	22	.62089	1.08349	1.000	-4.3560	5.5978
	23	2.75233	1.12515	.917	-2.4159	7.9206
	24	2.25383	1.91586	1.000	-6.5465	11.0541
	25	-8.55172	5.39355	.998	-33.3264	16.2229
	26	-6.80172	5.39355	1.000	-31.5764	17.9729
	30	-.80172	3.84600	1.000	-18.4679	16.8644
19	15	-2.65517	3.84600	1.000	-20.3213	15.0110
	16	4.00829	1.26212	.608	-1.7891	9.8057
	17	-.75517	1.14461	1.000	-6.0128	4.5024
	18	-.10345	.99303	1.000	-4.6648	4.4579
	20	.42571	.95583	1.000	-3.9648	4.8162
	21	1.00466	.98075	1.000	-3.5003	5.5096
	22	.51745	1.08349	1.000	-4.4594	5.4943
	23	2.64888	1.12515	.937	-2.5194	7.8171
	24	2.15038	1.91586	1.000	-6.6499	10.9507
	25	-8.65517	5.39355	.998	-33.4298	16.1195
	26	-6.90517	5.39355	1.000	-31.6798	17.8695
	30	-.90517	3.84600	1.000	-18.5713	16.7610
20	15	-3.08088	3.83656	1.000	-20.7037	14.5419

	16	3.58258	1.23306	.749	-2.0814	9.2465
	17	-1.18088	1.11248	1.000	-6.2909	3.9292
	18	-.52916	.95583	1.000	-4.9196	3.8613
	19	-.42571	.95583	1.000	-4.8162	3.9648
	21	.57895	.94306	1.000	-3.7529	4.9108
	22	.09174	1.04949	1.000	-4.7290	4.9125
	23	2.22317	1.09245	.981	-2.7949	7.2412
	24	1.72467	1.89685	1.000	-6.9883	10.4376
	25	-9.08088	5.38682	.997	-33.8246	15.6629
	26	-7.33088	5.38682	1.000	-32.0746	17.4129
	30	-1.33088	3.83656	1.000	-18.9537	16.2919
21	15	-3.65984	3.84285	1.000	-21.3115	13.9918
	16	3.00363	1.25248	.928	-2.7495	8.7567
	17	-1.75984	1.13396	.998	-6.9686	3.4489
	18	-1.10811	.98075	1.000	-5.6131	3.3968
	19	-1.00466	.98075	1.000	-5.5096	3.5003
	20	-.57895	.94306	1.000	-4.9108	3.7529
	22	-.48722	1.07224	1.000	-5.4124	4.4380
	23	1.64422	1.11432	.999	-3.4743	6.7627
	24	1.14572	1.90953	1.000	-7.6255	9.9169
	25	-9.65984	5.39130	.994	-34.4242	15.1045
	26	-7.90984	5.39130	.999	-32.6742	16.8545
	30	-1.90984	3.84285	1.000	-19.5615	15.7418
22	15	-3.17262	3.87034	1.000	-20.9506	14.6054
	16	3.49084	1.33446	.867	-2.6388	9.6205
	17	-1.27262	1.22391	1.000	-6.8945	4.3493
	18	-.62089	1.08349	1.000	-5.5978	4.3560
	19	-.51745	1.08349	1.000	-5.4943	4.4594
	20	-.09174	1.04949	1.000	-4.9125	4.7290
	21	.48722	1.07224	1.000	-4.4380	5.4124
	23	2.13144	1.20573	.995	-3.4070	7.6698
	24	1.63294	1.96427	1.000	-7.3897	10.6556
	25	-9.17262	5.41093	.996	-34.0271	15.6819
	26	-7.42262	5.41093	1.000	-32.2771	17.4319

	30	-1.42262	3.87034	1.000	-19.2006	16.3554
23	15	-5.30405	3.88221	1.000	-23.1365	12.5284
	16	1.35941	1.36850	1.000	-4.9266	7.6455
	17	-3.40405	1.26094	.838	-9.1960	2.3879
	18	-2.75233	1.12515	.917	-7.9206	2.4159
	19	-2.64888	1.12515	.937	-7.8171	2.5194
	20	-2.22317	1.09245	.981	-7.2412	2.7949
	21	-1.64422	1.11432	.999	-6.7627	3.4743
	22	-2.13144	1.20573	.995	-7.6698	3.4070
	24	-.49850	1.98756	1.000	-9.6281	8.6311
	25	-11.30405	5.41943	.976	-36.1976	13.5895
	26	-9.55405	5.41943	.995	-34.4476	15.3395
	30	-3.55405	3.88221	1.000	-21.3865	14.2784
24	15	-4.80556	4.18045	1.000	-24.0080	14.3968
	16	1.85791	2.06818	1.000	-7.6420	11.3579
	17	-2.90556	1.99864	.999	-12.0861	6.2749
	18	-2.25383	1.91586	1.000	-11.0541	6.5465
	19	-2.15038	1.91586	1.000	-10.9507	6.6499
	20	-1.72467	1.89685	1.000	-10.4376	6.9883
	21	-1.14572	1.90953	1.000	-9.9169	7.6255
	22	-1.63294	1.96427	1.000	-10.6556	7.3897
	23	.49850	1.98756	1.000	-8.6311	9.6281
	25	-10.80556	5.63691	.989	-36.6981	15.0870
	26	-9.05556	5.63691	.998	-34.9481	16.8370
	30	-3.05556	4.18045	1.000	-22.2580	16.1468
25	15	6.00000	6.54950	1.000	-24.0844	36.0844
	16	12.66346	5.44952	.943	-12.3683	37.6952
	17	7.90000	5.42350	.999	-17.0122	32.8122
	18	8.55172	5.39355	.998	-16.2229	33.3264
	19	8.65517	5.39355	.998	-16.1195	33.4298
	20	9.08088	5.38682	.997	-15.6629	33.8246
	21	9.65984	5.39130	.994	-15.1045	34.4242
	22	9.17262	5.41093	.996	-15.6819	34.0271
	23	11.30405	5.41943	.976	-13.5895	36.1976

		24	10.80556	5.63691	.989	-15.0870	36.6981
		26	1.75000	7.56271	1.000	-32.9885	36.4885
		30	7.75000	6.54950	1.000	-22.3344	37.8344
	26	15	4.25000	6.54950	1.000	-25.8344	34.3344
		16	10.91346	5.44952	.983	-14.1183	35.9452
		17	6.15000	5.42350	1.000	-18.7622	31.0622
		18	6.80172	5.39355	1.000	-17.9729	31.5764
		19	6.90517	5.39355	1.000	-17.8695	31.6798
		20	7.33088	5.38682	1.000	-17.4129	32.0746
		21	7.90984	5.39130	.999	-16.8545	32.6742
		22	7.42262	5.41093	1.000	-17.4319	32.2771
		23	9.55405	5.41943	.995	-15.3395	34.4476
		24	9.05556	5.63691	.998	-16.8370	34.9481
		25	-1.75000	7.56271	1.000	-36.4885	32.9885
		30	6.00000	6.54950	1.000	-24.0844	36.0844
	30	15	-1.75000	5.34765	1.000	-26.3138	22.8138
		16	4.91346	3.92410	1.000	-13.1114	22.9384
		17	.15000	3.88789	1.000	-17.7086	18.0086
		18	.80172	3.84600	1.000	-16.8644	18.4679
		19	.90517	3.84600	1.000	-16.7610	18.5713
		20	1.33088	3.83656	1.000	-16.2919	18.9537
		21	1.90984	3.84285	1.000	-15.7418	19.5615
		22	1.42262	3.87034	1.000	-16.3554	19.2006
		23	3.55405	3.88221	1.000	-14.2784	21.3865
		24	3.05556	4.18045	1.000	-16.1468	22.2580
		25	-7.75000	6.54950	1.000	-37.8344	22.3344
		26	-6.00000	6.54950	1.000	-36.0844	24.0844
Evaluation	15	16	1.20500	1.41800	1.000	-5.3085	7.7185
		17	-.11786	1.40291	1.000	-6.5620	6.3263
		18	.81897	1.38779	1.000	-5.5558	7.1937
		19	.43534	1.38779	1.000	-5.9394	6.8101
		20	1.13235	1.38439	1.000	-5.2267	7.4915
		21	.43932	1.38693	1.000	-5.9315	6.8101
		22	.95238	1.39658	1.000	-5.4627	7.3675

	23	1.28472	1.40186	1.000	-5.1546	7.7241
	24	.04167	1.50848	1.000	-6.8874	6.9708
	25	-1.37500	2.36333	1.000	-12.2308	9.4808
	26	2.87500	2.36333	1.000	-7.9808	13.7308
	30	.87500	1.92965	1.000	-7.9887	9.7387
16	15	-1.20500	1.41800	1.000	-7.7185	5.3085
	17	-1.32286	.50530	.867	-3.6439	.9982
	18	-.38603	.46167	1.000	-2.5067	1.7346
	19	-.76966	.46167	.997	-2.8903	1.3510
	20	-.07265	.45133	1.000	-2.1458	2.0005
	21	-.76568	.45907	.997	-2.8744	1.3430
	22	-.25262	.48744	1.000	-2.4916	1.9864
	23	.07972	.50237	1.000	-2.2279	2.3873
	24	-1.16333	.75011	.998	-4.6089	2.2823
	25	-2.58000	1.96786	1.000	-11.6193	6.4593
	26	1.67000	1.96786	1.000	-7.3693	10.7093
	30	-.33000	1.41800	1.000	-6.8435	6.1835
17	15	.11786	1.40291	1.000	-6.3263	6.5620
	16	1.32286	.50530	.867	-.9982	3.6439
	18	.93682	.41302	.953	-.9604	2.8340
	19	.55320	.41302	1.000	-1.3440	2.4504
	20	1.25021	.40143	.642	-.5937	3.0941
	21	.55717	.41011	1.000	-1.3266	2.4410
	22	1.07024	.44164	.922	-.9584	3.0989
	23	1.40258	.45806	.670	-.7015	3.5066
	24	.15952	.72119	1.000	-3.1532	3.4723
	25	-1.25714	1.95702	1.000	-10.2466	7.7323
	26	2.99286	1.95702	.999	-5.9966	11.9823
	30	.99286	1.40291	1.000	-5.4513	7.4370
18	15	-.81897	1.38779	1.000	-7.1937	5.5558
	16	.38603	.46167	1.000	-1.7346	2.5067
	17	-.93682	.41302	.953	-2.8340	.9604
	19	-.38362	.35833	1.000	-2.0296	1.2623
	20	.31339	.34490	1.000	-1.2709	1.8977
	21	-.37965	.35497	1.000	-2.0102	1.2509

	22	.13342	.39097	1.000	-1.6625	1.9293
	23	.46576	.40943	1.000	-1.4149	2.3464
	24	-.77730	.69132	1.000	-3.9528	2.3982
	25	-2.19397	1.94621	1.000	-11.1338	6.7458
	26	2.05603	1.94621	1.000	-6.8838	10.9958
	30	.05603	1.38779	1.000	-6.3187	6.4308
19	15	-.43534	1.38779	1.000	-6.8101	5.9394
	16	.76966	.46167	.997	-1.3510	2.8903
	17	-.55320	.41302	1.000	-2.4504	1.3440
	18	.38362	.35833	1.000	-1.2623	2.0296
	20	.69701	.34490	.982	-.8873	2.2813
	21	.00397	.35497	1.000	-1.6265	1.6345
	22	.51704	.39097	1.000	-1.2788	2.3129
	23	.84938	.40943	.977	-1.0313	2.7301
	24	-.39368	.69132	1.000	-3.5692	2.7819
	25	-1.81034	1.94621	1.000	-10.7502	7.1295
	26	2.43966	1.94621	1.000	-6.5002	11.3795
	30	.43966	1.38779	1.000	-5.9351	6.8144
20	15	-1.13235	1.38439	1.000	-7.4915	5.2267
	16	.07265	.45133	1.000	-2.0005	2.1458
	17	-1.25021	.40143	.642	-3.0941	.5937
	18	-.31339	.34490	1.000	-1.8977	1.2709
	19	-.69701	.34490	.982	-2.2813	.8873
	21	-.69304	.34141	.981	-2.2613	.8752
	22	-.17997	.37870	1.000	-1.9195	1.5596
	23	.15237	.39773	1.000	-1.6746	1.9793
	24	-1.09069	.68446	.998	-4.2347	2.0533
	25	-2.50735	1.94379	1.000	-11.4360	6.4213
	26	1.74265	1.94379	1.000	-7.1860	10.6713
	30	-.25735	1.38439	1.000	-6.6165	6.1017
21	15	-.43932	1.38693	1.000	-6.8101	5.9315
	16	.76568	.45907	.997	-1.3430	2.8744
	17	-.55717	.41011	1.000	-2.4410	1.3266
	18	.37965	.35497	1.000	-1.2509	2.0102
	19	-.00397	.35497	1.000	-1.6345	1.6265

	20	.69304	.34141	.981	-.8752	2.2613
	22	.51307	.38789	1.000	-1.2687	2.2948
	23	.84541	.40649	.977	-1.0218	2.7126
	24	-.39765	.68959	1.000	-3.5652	2.7699
	25	-1.81432	1.94560	1.000	-10.7513	7.1227
	26	2.43568	1.94560	1.000	-6.5013	11.3727
	30	.43568	1.38693	1.000	-5.9351	6.8065
22	15	-.95238	1.39658	1.000	-7.3675	5.4627
	16	.25262	.48744	1.000	-1.9864	2.4916
	17	-1.07024	.44164	.922	-3.0989	.9584
	18	-.13342	.39097	1.000	-1.9293	1.6625
	19	-.51704	.39097	1.000	-2.3129	1.2788
	20	.17997	.37870	1.000	-1.5596	1.9195
	21	-.51307	.38789	1.000	-2.2948	1.2687
	23	.33234	.43828	1.000	-1.6809	2.3455
	24	-.91071	.70879	1.000	-4.1665	2.3451
	25	-2.32738	1.95249	1.000	-11.2960	6.6412
	26	1.92262	1.95249	1.000	-7.0460	10.8912
	30	-.07738	1.39658	1.000	-6.4925	6.3377
23	15	-1.28472	1.40186	1.000	-7.7241	5.1546
	16	-.07972	.50237	1.000	-2.3873	2.2279
	17	-1.40258	.45806	.670	-3.5066	.7015
	18	-.46576	.40943	1.000	-2.3464	1.4149
	19	-.84938	.40943	.977	-2.7301	1.0313
	20	-.15237	.39773	1.000	-1.9793	1.6746
	21	-.84541	.40649	.977	-2.7126	1.0218
	22	-.33234	.43828	1.000	-2.3455	1.6809
	24	-1.24306	.71914	.996	-4.5464	2.0603
	25	-2.65972	1.95627	1.000	-11.6457	6.3263
	26	1.59028	1.95627	1.000	-7.3957	10.5763
	30	-.40972	1.40186	1.000	-6.8491	6.0296
24	15	-.04167	1.50848	1.000	-6.9708	6.8874
	16	1.16333	.75011	.998	-2.2823	4.6089
	17	-.15952	.72119	1.000	-3.4723	3.1532
	18	.77730	.69132	1.000	-2.3982	3.9528

	19	.39368	.69132	1.000	-2.7819	3.5692
	20	1.09069	.68446	.998	-2.0533	4.2347
	21	.39765	.68959	1.000	-2.7699	3.5652
	22	.91071	.70879	1.000	-2.3451	4.1665
	23	1.24306	.71914	.996	-2.0603	4.5464
	25	-1.41667	2.03403	1.000	-10.7599	7.9265
	26	2.83333	2.03403	.999	-6.5099	12.1765
	30	.83333	1.50848	1.000	-6.0958	7.7624
25	15	1.37500	2.36333	1.000	-9.4808	12.2308
	16	2.58000	1.96786	1.000	-6.4593	11.6193
	17	1.25714	1.95702	1.000	-7.7323	10.2466
	18	2.19397	1.94621	1.000	-6.7458	11.1338
	19	1.81034	1.94621	1.000	-7.1295	10.7502
	20	2.50735	1.94379	1.000	-6.4213	11.4360
	21	1.81432	1.94560	1.000	-7.1227	10.7513
	22	2.32738	1.95249	1.000	-6.6412	11.2960
	23	2.65972	1.95627	1.000	-6.3263	11.6457
	24	1.41667	2.03403	1.000	-7.9265	10.7599
	26	4.25000	2.72893	.998	-8.2852	16.7852
	30	2.25000	2.36333	1.000	-8.6058	13.1058
26	15	-2.87500	2.36333	1.000	-13.7308	7.9808
	16	-1.67000	1.96786	1.000	-10.7093	7.3693
	17	-2.99286	1.95702	.999	-11.9823	5.9966
	18	-2.05603	1.94621	1.000	-10.9958	6.8838
	19	-2.43966	1.94621	1.000	-11.3795	6.5002
	20	-1.74265	1.94379	1.000	-10.6713	7.1860
	21	-2.43568	1.94560	1.000	-11.3727	6.5013
	22	-1.92262	1.95249	1.000	-10.8912	7.0460
	23	-1.59028	1.95627	1.000	-10.5763	7.3957
	24	-2.83333	2.03403	.999	-12.1765	6.5099
	25	-4.25000	2.72893	.998	-16.7852	8.2852
	30	-2.00000	2.36333	1.000	-12.8558	8.8558
30	15	-.87500	1.92965	1.000	-9.7387	7.9887
	16	.33000	1.41800	1.000	-6.1835	6.8435
	17	-.99286	1.40291	1.000	-7.4370	5.4513

		18	-.05603	1.38779	1.000	-6.4308	6.3187
		19	-.43966	1.38779	1.000	-6.8144	5.9351
		20	.25735	1.38439	1.000	-6.1017	6.6165
		21	-.43568	1.38693	1.000	-6.8065	5.9351
		22	.07738	1.39658	1.000	-6.3377	6.4925
		23	.40972	1.40186	1.000	-6.0296	6.8491
		24	-.83333	1.50848	1.000	-7.7624	6.0958
		25	-2.25000	2.36333	1.000	-13.1058	8.6058
		26	2.00000	2.36333	1.000	-8.8558	12.8558
Personality	15	16	2.84000	1.39840	.981	-3.5835	9.2635
		17	2.12143	1.38352	.999	-4.2337	8.4766
		18	1.83190	1.36861	1.000	-4.4548	8.1186
		19	1.74138	1.36861	1.000	-4.5453	8.0280
		20	2.18750	1.36525	.998	-4.0837	8.4587
		21	1.78750	1.36785	1.000	-4.4957	8.0707
		22	2.40303	1.37784	.995	-3.9260	8.7321
		23	2.26389	1.38248	.997	-4.0865	8.6143
		24	1.66667	1.48762	1.000	-5.1667	8.5000
		25	-.50000	2.33066	1.000	-11.2058	10.2058
		26	.00000	2.33066	1.000	-10.7058	10.7058
		30	3.25000	1.90298	.996	-5.4912	11.9912
	16	15	-2.84000	1.39840	.981	-9.2635	3.5835
		17	-.71857	.49832	.999	-3.0076	1.5704
		18	-1.00810	.45529	.961	-3.0995	1.0833
		19	-1.09862	.45529	.924	-3.1900	.9927
		20	-.65250	.44509	.999	-2.6970	1.3920
		21	-1.05250	.45300	.943	-3.1333	1.0283
		22	-.43697	.48233	1.000	-2.6525	1.7786
		23	-.57611	.49542	1.000	-2.8518	1.6996
		24	-1.17333	.73974	.998	-4.5713	2.2247
		25	-3.34000	1.94066	.996	-12.2544	5.5744
		26	-2.84000	1.94066	.999	-11.7544	6.0744
		30	.41000	1.39840	1.000	-6.0135	6.8335
	17	15	-2.12143	1.38352	.999	-8.4766	4.2337
		16	.71857	.49832	.999	-1.5704	3.0076

	18	-.28953	.40731	1.000	-2.1605	1.5814
	19	-.38005	.40731	1.000	-2.2510	1.4909
	20	.06607	.39588	1.000	-1.7524	1.8845
	21	-.33393	.40475	1.000	-2.1931	1.5253
	22	.28160	.43733	1.000	-1.7272	2.2904
	23	.14246	.45173	1.000	-1.9325	2.2175
	24	-.45476	.71122	1.000	-3.7217	2.8122
	25	-2.62143	1.92997	1.000	-11.4867	6.2438
	26	-2.12143	1.92997	1.000	-10.9867	6.7438
	30	1.12857	1.38352	1.000	-5.2266	7.4837
18	15	-1.83190	1.36861	1.000	-8.1186	4.4548
	16	1.00810	.45529	.961	-1.0833	3.0995
	17	.28953	.40731	1.000	-1.5814	2.1605
	19	-.09052	.35337	1.000	-1.7137	1.5327
	20	.35560	.34013	1.000	-1.2068	1.9180
	21	-.04440	.35042	1.000	-1.6540	1.5652
	22	.57113	.38759	.999	-1.2092	2.3515
	23	.43199	.40377	1.000	-1.4227	2.2867
	24	-.16523	.68177	1.000	-3.2969	2.9664
	25	-2.33190	1.91931	1.000	-11.1482	6.4844
	26	-1.83190	1.91931	1.000	-10.6482	6.9844
	30	1.41810	1.36861	1.000	-4.8686	7.7048
19	15	-1.74138	1.36861	1.000	-8.0280	4.5453
	16	1.09862	.45529	.924	-.9927	3.1900
	17	.38005	.40731	1.000	-1.4909	2.2510
	18	.09052	.35337	1.000	-1.5327	1.7137
	20	.44612	.34013	1.000	-1.1163	2.0085
	21	.04612	.35042	1.000	-1.5635	1.6557
	22	.66165	.38759	.996	-1.1187	2.4420
	23	.52251	.40377	1.000	-1.3322	2.3772
	24	-.07471	.68177	1.000	-3.2064	3.0570
	25	-2.24138	1.91931	1.000	-11.0577	6.5749
	26	-1.74138	1.91931	1.000	-10.5577	7.0749
	30	1.50862	1.36861	1.000	-4.7780	7.7953
20	15	-2.18750	1.36525	.998	-8.4587	4.0837

	16	.65250	.44509	.999	-1.3920	2.6970
	17	-.06607	.39588	1.000	-1.8845	1.7524
	18	-.35560	.34013	1.000	-1.9180	1.2068
	19	-.44612	.34013	1.000	-2.0085	1.1163
	21	-.40000	.33706	1.000	-1.9483	1.1483
	22	.21553	.37556	1.000	-1.5096	1.9406
	23	.07639	.39223	1.000	-1.7253	1.8781
	24	-.52083	.67500	1.000	-3.6214	2.5797
	25	-2.68750	1.91692	.999	-11.4928	6.1178
	26	-2.18750	1.91692	1.000	-10.9928	6.6178
	30	1.06250	1.36525	1.000	-5.2087	7.3337
21	15	-1.78750	1.36785	1.000	-8.0707	4.4957
	16	1.05250	.45300	.943	-1.0283	3.1333
	17	.33393	.40475	1.000	-1.5253	2.1931
	18	.04440	.35042	1.000	-1.5652	1.6540
	19	-.04612	.35042	1.000	-1.6557	1.5635
	20	.40000	.33706	1.000	-1.1483	1.9483
	22	.61553	.38490	.998	-1.1525	2.3835
	23	.47639	.40118	1.000	-1.3664	2.3192
	24	-.12083	.68024	1.000	-3.2455	3.0038
	25	-2.28750	1.91877	1.000	-11.1013	6.5263
	26	-1.78750	1.91877	1.000	-10.6013	7.0263
	30	1.46250	1.36785	1.000	-4.8207	7.7457
22	15	-2.40303	1.37784	.995	-8.7321	3.9260
	16	.43697	.48233	1.000	-1.7786	2.6525
	17	-.28160	.43733	1.000	-2.2904	1.7272
	18	-.57113	.38759	.999	-2.3515	1.2092
	19	-.66165	.38759	.996	-2.4420	1.1187
	20	-.21553	.37556	1.000	-1.9406	1.5096
	21	-.61553	.38490	.998	-2.3835	1.1525
	23	-.13914	.43403	1.000	-2.1328	1.8546
	24	-.73636	.70011	1.000	-3.9523	2.4796
	25	-2.90303	1.92590	.999	-11.7496	5.9435
	26	-2.40303	1.92590	1.000	-11.2496	6.4435
	30	.84697	1.37784	1.000	-5.4821	7.1760

	23	15	-2.26389	1.38248	.997	-8.6143	4.0865
		16	.57611	.49542	1.000	-1.6996	2.8518
		17	-.14246	.45173	1.000	-2.2175	1.9325
		18	-.43199	.40377	1.000	-2.2867	1.4227
		19	-.52251	.40377	1.000	-2.3772	1.3322
		20	-.07639	.39223	1.000	-1.8781	1.7253
		21	-.47639	.40118	1.000	-2.3192	1.3664
		22	.13914	.43403	1.000	-1.8546	2.1328
		24	-.59722	.70920	1.000	-3.8549	2.6604
		25	-2.76389	1.92922	.999	-11.6257	6.0979
		26	-2.26389	1.92922	1.000	-11.1257	6.5979
		30	.98611	1.38248	1.000	-5.3643	7.3365
	24	15	-1.66667	1.48762	1.000	-8.5000	5.1667
		16	1.17333	.73974	.998	-2.2247	4.5713
		17	.45476	.71122	1.000	-2.8122	3.7217
		18	.16523	.68177	1.000	-2.9664	3.2969
		19	.07471	.68177	1.000	-3.0570	3.2064
		20	.52083	.67500	1.000	-2.5797	3.6214
		21	.12083	.68024	1.000	-3.0038	3.2455
		22	.73636	.70011	1.000	-2.4796	3.9523
		23	.59722	.70920	1.000	-2.6604	3.8549
		25	-2.16667	2.00591	1.000	-11.3807	7.0474
		26	-1.66667	2.00591	1.000	-10.8807	7.5474
		30	1.58333	1.48762	1.000	-5.2500	8.4167
	25	15	.50000	2.33066	1.000	-10.2058	11.2058
		16	3.34000	1.94066	.996	-5.5744	12.2544
		17	2.62143	1.92997	1.000	-6.2438	11.4867
		18	2.33190	1.91931	1.000	-6.4844	11.1482
		19	2.24138	1.91931	1.000	-6.5749	11.0577
		20	2.68750	1.91692	.999	-6.1178	11.4928
		21	2.28750	1.91877	1.000	-6.5263	11.1013
		22	2.90303	1.92590	.999	-5.9435	11.7496
		23	2.76389	1.92922	.999	-6.0979	11.6257
		24	2.16667	2.00591	1.000	-7.0474	11.3807
		26	.50000	2.69121	1.000	-11.8620	12.8620

		30	3.75000	2.33066	.998	-6.9558	14.4558
	26	15	.00000	2.33066	1.000	-10.7058	10.7058
		16	2.84000	1.94066	.999	-6.0744	11.7544
		17	2.12143	1.92997	1.000	-6.7438	10.9867
		18	1.83190	1.91931	1.000	-6.9844	10.6482
		19	1.74138	1.91931	1.000	-7.0749	10.5577
		20	2.18750	1.91692	1.000	-6.6178	10.9928
		21	1.78750	1.91877	1.000	-7.0263	10.6013
		22	2.40303	1.92590	1.000	-6.4435	11.2496
		23	2.26389	1.92922	1.000	-6.5979	11.1257
		24	1.66667	2.00591	1.000	-7.5474	10.8807
		25	-.50000	2.69121	1.000	-12.8620	11.8620
		30	3.25000	2.33066	.999	-7.4558	13.9558
	30	15	-3.25000	1.90298	.996	-11.9912	5.4912
		16	-.41000	1.39840	1.000	-6.8335	6.0135
		17	-1.12857	1.38352	1.000	-7.4837	5.2266
		18	-1.41810	1.36861	1.000	-7.7048	4.8686
		19	-1.50862	1.36861	1.000	-7.7953	4.7780
		20	-1.06250	1.36525	1.000	-7.3337	5.2087
		21	-1.46250	1.36785	1.000	-7.7457	4.8207
		22	-.84697	1.37784	1.000	-7.1760	5.4821
		23	-.98611	1.38248	1.000	-7.3365	5.3643
		24	-1.58333	1.48762	1.000	-8.4167	5.2500
		25	-3.75000	2.33066	.998	-14.4558	6.9558
		26	-3.25000	2.33066	.999	-13.9558	7.4558
Preparation	15	16	.81000	1.02161	1.000	-3.8827	5.5027
		17	.72143	1.01074	1.000	-3.9214	5.3642
		18	.47845	.99985	1.000	-4.1143	5.0712
		19	.24138	.99985	1.000	-4.3514	4.8341
		20	.31985	.99739	1.000	-4.2616	4.9013
		21	.44167	.99929	1.000	-4.1485	5.0319
		22	.77121	1.00659	1.000	-3.8525	5.3949
		23	.47917	1.00998	1.000	-4.1601	5.1185
		24	.47222	1.08679	1.000	-4.5199	5.4644
		25	-.75000	1.70268	1.000	-8.5712	7.0712

	26	.25000	1.70268	1.000	-7.5712	8.0712
	30	-1.00000	1.39023	1.000	-7.3860	5.3860
16	15	-.81000	1.02161	1.000	-5.5027	3.8827
	17	-.08857	.36405	1.000	-1.7608	1.5837
	18	-.33155	.33262	1.000	-1.8594	1.1963
	19	-.56862	.33262	.996	-2.0965	.9592
	20	-.49015	.32517	.999	-1.9838	1.0035
	21	-.36833	.33094	1.000	-1.8885	1.1518
	22	-.03879	.35237	1.000	-1.6574	1.5798
	23	-.33083	.36194	1.000	-1.9934	1.3317
	24	-.33778	.54042	1.000	-2.8202	2.1446
	25	-1.56000	1.41776	1.000	-8.0724	4.9524
	26	-.56000	1.41776	1.000	-7.0724	5.9524
	30	-1.81000	1.02161	.994	-6.5027	2.8827
17	15	-.72143	1.01074	1.000	-5.3642	3.9214
	16	.08857	.36405	1.000	-1.5837	1.7608
	18	-.24298	.29756	1.000	-1.6098	1.1239
	19	-.48005	.29756	.998	-1.8469	.8868
	20	-.40158	.28921	1.000	-1.7301	.9269
	21	-.27976	.29569	1.000	-1.6380	1.0785
	22	.04978	.31949	1.000	-1.4178	1.5174
	23	-.24226	.33001	1.000	-1.7582	1.2736
	24	-.24921	.51959	1.000	-2.6359	2.1375
	25	-1.47143	1.40995	1.000	-7.9480	5.0051
	26	-.47143	1.40995	1.000	-6.9480	6.0051
	30	-1.72143	1.01074	.996	-6.3642	2.9214
18	15	-.47845	.99985	1.000	-5.0712	4.1143
	16	.33155	.33262	1.000	-1.1963	1.8594
	17	.24298	.29756	1.000	-1.1239	1.6098
	19	-.23707	.25816	1.000	-1.4229	.9488
	20	-.15860	.24849	1.000	-1.3000	.9828
	21	-.03678	.25600	1.000	-1.2127	1.1391
	22	.29276	.28316	1.000	-1.0079	1.5934
	23	.00072	.29498	1.000	-1.3542	1.3557
	24	-.00623	.49807	1.000	-2.2941	2.2816

	25	-1.22845	1.40217	1.000	-7.6692	5.2123
	26	-.22845	1.40217	1.000	-6.6692	6.2123
	30	-1.47845	.99985	.999	-6.0712	3.1143
19	15	-.24138	.99985	1.000	-4.8341	4.3514
	16	.56862	.33262	.996	-.9592	2.0965
	17	.48005	.29756	.998	-.8868	1.8469
	18	.23707	.25816	1.000	-.9488	1.4229
	20	.07847	.24849	1.000	-1.0629	1.2199
	21	.20029	.25600	1.000	-.9756	1.3762
	22	.52983	.28316	.991	-.7708	1.8305
	23	.23779	.29498	1.000	-1.1172	1.5927
	24	.23084	.49807	1.000	-2.0570	2.5187
	25	-.99138	1.40217	1.000	-7.4322	5.4494
	26	.00862	1.40217	1.000	-6.4322	6.4494
	30	-1.24138	.99985	1.000	-5.8341	3.3514
20	15	-.31985	.99739	1.000	-4.9013	4.2616
	16	.49015	.32517	.999	-1.0035	1.9838
	17	.40158	.28921	1.000	-.9269	1.7301
	18	.15860	.24849	1.000	-.9828	1.3000
	19	-.07847	.24849	1.000	-1.2199	1.0629
	21	.12181	.24624	1.000	-1.0093	1.2529
	22	.45136	.27437	.997	-.8089	1.7117
	23	.15931	.28655	1.000	-1.1569	1.4756
	24	.15237	.49312	1.000	-2.1128	2.4175
	25	-1.06985	1.40042	1.000	-7.5026	5.3629
	26	-.06985	1.40042	1.000	-6.5026	6.3629
	30	-1.31985	.99739	1.000	-5.9013	3.2616
21	15	-.44167	.99929	1.000	-5.0319	4.1485
	16	.36833	.33094	1.000	-1.1518	1.8885
	17	.27976	.29569	1.000	-1.0785	1.6380
	18	.03678	.25600	1.000	-1.1391	1.2127
	19	-.20029	.25600	1.000	-1.3762	.9756
	20	-.12181	.24624	1.000	-1.2529	1.0093
	22	.32955	.28119	1.000	-.9621	1.6212
	23	.03750	.29309	1.000	-1.3088	1.3838

	24	.03056	.49695	1.000	-2.2522	2.3133
	25	-1.19167	1.40177	1.000	-7.6306	5.2473
	26	-.19167	1.40177	1.000	-6.6306	6.2473
	30	-1.44167	.99929	.999	-6.0319	3.1485
22	15	-.77121	1.00659	1.000	-5.3949	3.8525
	16	.03879	.35237	1.000	-1.5798	1.6574
	17	-.04978	.31949	1.000	-1.5174	1.4178
	18	-.29276	.28316	1.000	-1.5934	1.0079
	19	-.52983	.28316	.991	-1.8305	.7708
	20	-.45136	.27437	.997	-1.7117	.8089
	21	-.32955	.28119	1.000	-1.6212	.9621
	23	-.29205	.31708	1.000	-1.7486	1.1645
	24	-.29899	.51147	1.000	-2.6484	2.0504
	25	-1.52121	1.40698	1.000	-7.9841	4.9417
	26	-.52121	1.40698	1.000	-6.9841	5.9417
	30	-1.77121	1.00659	.995	-6.3949	2.8525
23	15	-.47917	1.00998	1.000	-5.1185	4.1601
	16	.33083	.36194	1.000	-1.3317	1.9934
	17	.24226	.33001	1.000	-1.2736	1.7582
	18	-.00072	.29498	1.000	-1.3557	1.3542
	19	-.23779	.29498	1.000	-1.5927	1.1172
	20	-.15931	.28655	1.000	-1.4756	1.1569
	21	-.03750	.29309	1.000	-1.3838	1.3088
	22	.29205	.31708	1.000	-1.1645	1.7486
	24	-.00694	.51811	1.000	-2.3869	2.3730
	25	-1.22917	1.40941	1.000	-7.7032	5.2449
	26	-.22917	1.40941	1.000	-6.7032	6.2449
	30	-1.47917	1.00998	.999	-6.1185	3.1601
24	15	-.47222	1.08679	1.000	-5.4644	4.5199
	16	.33778	.54042	1.000	-2.1446	2.8202
	17	.24921	.51959	1.000	-2.1375	2.6359
	18	.00623	.49807	1.000	-2.2816	2.2941
	19	-.23084	.49807	1.000	-2.5187	2.0570
	20	-.15237	.49312	1.000	-2.4175	2.1128
	21	-.03056	.49695	1.000	-2.3133	2.2522

	22	.29899	.51147	1.000	-2.0504	2.6484
	23	.00694	.51811	1.000	-2.3730	2.3869
	25	-1.22222	1.46543	1.000	-7.9536	5.5092
	26	-.22222	1.46543	1.000	-6.9536	6.5092
	30	-1.47222	1.08679	1.000	-6.4644	3.5199
25	15	.75000	1.70268	1.000	-7.0712	8.5712
	16	1.56000	1.41776	1.000	-4.9524	8.0724
	17	1.47143	1.40995	1.000	-5.0051	7.9480
	18	1.22845	1.40217	1.000	-5.2123	7.6692
	19	.99138	1.40217	1.000	-5.4494	7.4322
	20	1.06985	1.40042	1.000	-5.3629	7.5026
	21	1.19167	1.40177	1.000	-5.2473	7.6306
	22	1.52121	1.40698	1.000	-4.9417	7.9841
	23	1.22917	1.40941	1.000	-5.2449	7.7032
	24	1.22222	1.46543	1.000	-5.5092	7.9536
	26	1.00000	1.96608	1.000	-8.0311	10.0311
	30	-.25000	1.70268	1.000	-8.0712	7.5712
26	15	-.25000	1.70268	1.000	-8.0712	7.5712
	16	.56000	1.41776	1.000	-5.9524	7.0724
	17	.47143	1.40995	1.000	-6.0051	6.9480
	18	.22845	1.40217	1.000	-6.2123	6.6692
	19	-.00862	1.40217	1.000	-6.4494	6.4322
	20	.06985	1.40042	1.000	-6.3629	6.5026
	21	.19167	1.40177	1.000	-6.2473	6.6306
	22	.52121	1.40698	1.000	-5.9417	6.9841
	23	.22917	1.40941	1.000	-6.2449	6.7032
	24	.22222	1.46543	1.000	-6.5092	6.9536
	25	-1.00000	1.96608	1.000	-10.0311	8.0311
	30	-1.25000	1.70268	1.000	-9.0712	6.5712
30	15	1.00000	1.39023	1.000	-5.3860	7.3860
	16	1.81000	1.02161	.994	-2.8827	6.5027
	17	1.72143	1.01074	.996	-2.9214	6.3642
	18	1.47845	.99985	.999	-3.1143	6.0712
	19	1.24138	.99985	1.000	-3.3514	5.8341
	20	1.31985	.99739	1.000	-3.2616	5.9013

	21	1.44167	.99929	.999	-3.1485	6.0319
	22	1.77121	1.00659	.995	-2.8525	6.3949
	23	1.47917	1.00998	.999	-3.1601	6.1185
	24	1.47222	1.08679	1.000	-3.5199	6.4644
	25	.25000	1.70268	1.000	-7.5712	8.0712
	26	1.25000	1.70268	1.000	-6.5712	9.0712

Appendix 7

Scheffe Post- Hoc Analysis of Components of Teaching Effectiveness Based on Rank of Lecturers.

Multiple Comparisons

Scheffe

Dependent Variable	(I) rank of lecturer	(J) rank of lecturer	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Classroom Interaction	assistant lecturer	lecturer iii	1.45333	.98051	.901	-2.0307	4.9373
		lecturer ii	.57000	1.07410	1.000	-3.2465	4.3865
		lecturer i	-.27500	1.07410	1.000	-4.0915	3.5415
		senior lecturer	.65333	.98051	.998	-2.8307	4.1373
		principal lecturer	2.02500	1.07410	.737	-1.7915	5.8415
		chief lecturer	1.17000	1.07410	.977	-2.6465	4.9865
	lecturer iii	assistant lecturer	-1.45333	.98051	.901	-4.9373	2.0307
		lecturer ii	-.88333	.98051	.992	-4.3673	2.6007
		lecturer i	-1.72833	.98051	.795	-5.2123	1.7557
		senior lecturer	-.80000	.87700	.991	-3.9162	2.3162
		principal lecturer	.57167	.98051	.999	-2.9123	4.0557
		chief lecturer	-.28333	.98051	1.000	-3.7673	3.2007
	lecturer ii	assistant lecturer	-.57000	1.07410	1.000	-4.3865	3.2465
		lecturer iii	.88333	.98051	.992	-2.6007	4.3673
		lecturer i	-.84500	1.07410	.996	-4.6615	2.9715
		senior lecturer	.08333	.98051	1.000	-3.4007	3.5673
		principal lecturer	1.45500	1.07410	.934	-2.3615	5.2715
		chief lecturer	.60000	1.07410	.999	-3.2165	4.4165
	lecturer i	assistant lecturer	.27500	1.07410	1.000	-3.5415	4.0915
		lecturer iii	1.72833	.98051	.795	-1.7557	5.2123
		lecturer ii	.84500	1.07410	.996	-2.9715	4.6615
		senior lecturer	.92833	.98051	.989	-2.5557	4.4123
		principal lecturer	2.30000	1.07410	.598	-1.5165	6.1165
		chief lecturer	1.44500	1.07410	.936	-2.3715	5.2615

	senior lecturer	assistant lecturer	-.65333	.98051	.998	-4.1373	2.8307
		lecturer iii	.80000	.87700	.991	-2.3162	3.9162
		lecturer ii	-.08333	.98051	1.000	-3.5673	3.4007
		lecturer i	-.92833	.98051	.989	-4.4123	2.5557
		principal lecturer	1.37167	.98051	.923	-2.1123	4.8557
		chief lecturer	.51667	.98051	1.000	-2.9673	4.0007
	principal lecturer	assistant lecturer	-2.02500	1.07410	.737	-5.8415	1.7915
		lecturer iii	-.57167	.98051	.999	-4.0557	2.9123
		lecturer ii	-1.45500	1.07410	.934	-5.2715	2.3615
		lecturer i	-2.30000	1.07410	.598	-6.1165	1.5165
		senior lecturer	-1.37167	.98051	.923	-4.8557	2.1123
		chief lecturer	-.85500	1.07410	.996	-4.6715	2.9615
	chief lecturer	assistant lecturer	-1.17000	1.07410	.977	-4.9865	2.6465
		lecturer iii	.28333	.98051	1.000	-3.2007	3.7673
		lecturer ii	-.60000	1.07410	.999	-4.4165	3.2165
		lecturer i	-1.44500	1.07410	.936	-5.2615	2.3715
		senior lecturer	-.51667	.98051	1.000	-4.0007	2.9673
		principal lecturer	.85500	1.07410	.996	-2.9615	4.6715
Evaluation	assistant lecturer	lecturer iii	-.45781	.35391	.947	-1.7153	.7997
		lecturer ii	-.33000	.38690	.994	-1.7048	1.0448
		lecturer i	-.34000	.38690	.993	-1.7148	1.0348
		senior lecturer	-.18114	.35367	1.000	-1.4378	1.0755
		principal lecturer	.05091	.38838	1.000	-1.3291	1.4309
		chief lecturer	.38594	.38838	.986	-.9941	1.7659
	lecturer iii	assistant lecturer	.45781	.35391	.947	-.7997	1.7153
		lecturer ii	.12781	.35391	1.000	-1.1297	1.3853
		lecturer i	.11781	.35391	1.000	-1.1397	1.3753
		senior lecturer	.27667	.31723	.993	-.8505	1.4039
		principal lecturer	.50873	.35551	.915	-.7545	1.7720
		chief lecturer	.84375	.35551	.466	-.4195	2.1070
	lecturer ii	assistant lecturer	.33000	.38690	.994	-1.0448	1.7048
		lecturer iii	-.12781	.35391	1.000	-1.3853	1.1297
		lecturer i	-.01000	.38690	1.000	-1.3848	1.3648
		senior lecturer	.14886	.35367	1.000	-1.1078	1.4055

		principal lecturer	.38091	.38838	.987	-.9991	1.7609
		chief lecturer	.71594	.38838	.757	-.6641	2.0959
	lecturer i	assistant lecturer	.34000	.38690	.993	-1.0348	1.7148
		lecturer iii	-.11781	.35391	1.000	-1.3753	1.1397
		lecturer ii	.01000	.38690	1.000	-1.3648	1.3848
		senior lecturer	.15886	.35367	1.000	-1.0978	1.4155
		principal lecturer	.39091	.38838	.985	-.9891	1.7709
		chief lecturer	.72594	.38838	.745	-.6541	2.1059
	senior lecturer	assistant lecturer	.18114	.35367	1.000	-1.0755	1.4378
		lecturer iii	-.27667	.31723	.993	-1.4039	.8505
		lecturer ii	-.14886	.35367	1.000	-1.4055	1.1078
		lecturer i	-.15886	.35367	1.000	-1.4155	1.0978
		principal lecturer	.23205	.35528	.999	-1.0303	1.4945
		chief lecturer	.56708	.35528	.863	-.6953	1.8295
	principal lecturer	assistant lecturer	-.05091	.38838	1.000	-1.4309	1.3291
		lecturer iii	-.50873	.35551	.915	-1.7720	.7545
		lecturer ii	-.38091	.38838	.987	-1.7609	.9991
		lecturer i	-.39091	.38838	.985	-1.7709	.9891
		senior lecturer	-.23205	.35528	.999	-1.4945	1.0303
		chief lecturer	.33503	.38984	.994	-1.0502	1.7202
	chief lecturer	assistant lecturer	-.38594	.38838	.986	-1.7659	.9941
		lecturer iii	-.84375	.35551	.466	-2.1070	.4195
		lecturer ii	-.71594	.38838	.757	-2.0959	.6641
		lecturer i	-.72594	.38838	.745	-2.1059	.6541
		senior lecturer	-.56708	.35528	.863	-1.8295	.6953
		principal lecturer	-.33503	.38984	.994	-1.7202	1.0502
Personality	assistant lecturer	lecturer iii	.42365	.34878	.961	-.8157	1.6630
		lecturer ii	.34500	.38104	.992	-1.0089	1.6989
		lecturer i	-.27000	.38104	.998	-1.6239	1.0839
		senior lecturer	.34360	.34854	.987	-.8949	1.5821
		principal lecturer	-.05918	.38298	1.000	-1.4200	1.3017
		chief lecturer	.39490	.38298	.983	-.9659	1.7557
	lecturer iii	assistant lecturer	-.42365	.34878	.961	-1.6630	.8157
		lecturer ii	-.07865	.34878	1.000	-1.3180	1.1607

	lecturer i	-.69365	.34878	.683	-1.9330	.5457
	senior lecturer	-.08005	.31295	1.000	-1.1920	1.0320
	principal lecturer	-.48283	.35090	.929	-1.7297	.7640
	chief lecturer	-.02875	.35090	1.000	-1.2756	1.2181
lecturer ii	assistant lecturer	-.34500	.38104	.992	-1.6989	1.0089
	lecturer iii	.07865	.34878	1.000	-1.1607	1.3180
	lecturer i	-.61500	.38104	.856	-1.9689	.7389
	senior lecturer	-.00140	.34854	1.000	-1.2399	1.2371
	principal lecturer	-.40418	.38298	.981	-1.7650	.9567
	chief lecturer	.04990	.38298	1.000	-1.3109	1.4107
lecturer i	assistant lecturer	.27000	.38104	.998	-1.0839	1.6239
	lecturer iii	.69365	.34878	.683	-.5457	1.9330
	lecturer ii	.61500	.38104	.856	-.7389	1.9689
	senior lecturer	.61360	.34854	.796	-.6249	1.8521
	principal lecturer	.21082	.38298	.999	-1.1500	1.5717
	chief lecturer	.66490	.38298	.807	-.6959	2.0257
senior lecturer	assistant lecturer	-.34360	.34854	.987	-1.5821	.8949
	lecturer iii	.08005	.31295	1.000	-1.0320	1.1920
	lecturer ii	.00140	.34854	1.000	-1.2371	1.2399
	lecturer i	-.61360	.34854	.796	-1.8521	.6249
	principal lecturer	-.40279	.35066	.971	-1.6488	.8432
	chief lecturer	.05130	.35066	1.000	-1.1947	1.2973
principal lecturer	assistant lecturer	.05918	.38298	1.000	-1.3017	1.4200
	lecturer iii	.48283	.35090	.929	-.7640	1.7297
	lecturer ii	.40418	.38298	.981	-.9567	1.7650
	lecturer i	-.21082	.38298	.999	-1.5717	1.1500
	senior lecturer	.40279	.35066	.971	-.8432	1.6488
	chief lecturer	.45408	.38491	.966	-.9136	1.8218
chief lecturer	assistant lecturer	-.39490	.38298	.983	-1.7557	.9659
	lecturer iii	.02875	.35090	1.000	-1.2181	1.2756
	lecturer ii	-.04990	.38298	1.000	-1.4107	1.3109
	lecturer i	-.66490	.38298	.807	-2.0257	.6959
	senior lecturer	-.05130	.35066	1.000	-1.2973	1.1947
	principal lecturer	-.45408	.38491	.966	-1.8218	.9136

Preparation	assistant lecturer	lecturer iii	.03392	.25347	1.000	-.8667	.9346
		lecturer ii	.33000	.27691	.965	-.6540	1.3140
		lecturer i	-.42000	.27691	.890	-1.4040	.5640
		senior lecturer	.01652	.25330	1.000	-.8835	.9165
		principal lecturer	.66092	.27832	.465	-.3280	1.6499
		chief lecturer	.04357	.27832	1.000	-.9454	1.0325
	lecturer iii	assistant lecturer	-.03392	.25347	1.000	-.9346	.8667
		lecturer ii	.29608	.25347	.968	-.6046	1.1967
		lecturer i	-.45392	.25347	.782	-1.3546	.4467
		senior lecturer	-.01740	.22743	1.000	-.8255	.7907
		principal lecturer	.62700	.25501	.419	-.2791	1.5331
		chief lecturer	.00965	.25501	1.000	-.8965	.9158
	lecturer ii	assistant lecturer	-.33000	.27691	.965	-1.3140	.6540
		lecturer iii	-.29608	.25347	.968	-1.1967	.6046
		lecturer i	-.75000	.27691	.292	-1.7340	.2340
		senior lecturer	-.31348	.25330	.957	-1.2135	.5865
		principal lecturer	.33092	.27832	.965	-.6580	1.3199
		chief lecturer	-.28643	.27832	.983	-1.2754	.7025
	lecturer i	assistant lecturer	.42000	.27691	.890	-.5640	1.4040
		lecturer iii	.45392	.25347	.782	-.4467	1.3546
		lecturer ii	.75000	.27691	.292	-.2340	1.7340
		senior lecturer	.43652	.25330	.812	-.4635	1.3365
		principal lecturer	1.08092*	.27832	.020	.0920	2.0699
		chief lecturer	.46357	.27832	.836	-.5254	1.4525
	senior lecturer	assistant lecturer	-.01652	.25330	1.000	-.9165	.8835
		lecturer iii	.01740	.22743	1.000	-.7907	.8255
		lecturer ii	.31348	.25330	.957	-.5865	1.2135
		lecturer i	-.43652	.25330	.812	-1.3365	.4635
		principal lecturer	.64440	.25484	.381	-.2611	1.5499
		chief lecturer	.02706	.25484	1.000	-.8784	.9326
	principal lecturer	assistant lecturer	-.66092	.27832	.465	-1.6499	.3280
		lecturer iii	-.62700	.25501	.419	-1.5331	.2791
		lecturer ii	-.33092	.27832	.965	-1.3199	.6580
		lecturer i	-1.08092*	.27832	.020	-2.0699	-.0920
		senior lecturer	-.64440	.25484	.381	-1.5499	.2611

		chief lecturer	-.61735	.27972	.561	-1.6113	.3766
	chief lecturer	assistant lecturer	-.04357	.27832	1.000	-1.0325	.9454
		lecturer iii	-.00965	.25501	1.000	-.9158	.8965
		lecturer ii	.28643	.27832	.983	-.7025	1.2754
		lecturer i	-.46357	.27832	.836	-1.4525	.5254
		senior lecturer	-.02706	.25484	1.000	-.9326	.8784
		principal lecturer	.61735	.27972	.561	-.3766	1.6113

*. The mean difference is significant at the 0.05 level.