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I

**PREDICTIVE VALIDITY OF CONTINUOUS ASSESSMENT
FOR PERFORMANCE IN SENIOR SECONDARY SCHOOL
CERTIFICATE EXAMINATIONS
IN KADUNA METROPOLIS**

BY

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DECLARATION

I declare that this thesis has been written by me and that it is a record and production of my own work. To the best of my knowledge, it has not been presented in any previous application for a higher degree. All quotations are indicated and sources of information have been specifically acknowledged by means of references.

Hassan

HAUWA OMOLEMI HASSAN

03/03/95

DATE

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DEDICATION

This thesis is dedicated to my daughter
AISHATU OMOLEYE HASSAN
who has been my inspiration all the way.

ABSTRACT

This study was conceived primarily because of many questions that came to the minds of teachers and examination experts during a WAEC seminar in 1991. Many education experts were sceptical about the continuous assessment tests - its validity and reliability and the disadvantages of incorporating the continuous assessment scores in the final senior school certificate results.

The research, traced the beginning of continuous assessment in the Nigerian Education System, and went on to find out the relationship between continuous assessment scores and terminal scores. The research went further to discover, through regression analysis, the predictive validity of continuous assessment scores for performance in senior secondary school certificate examination.

The findings indicated that most of the continuous assessment scores that came from the schools were haphazardly awarded and that most teachers overgrade their students. Only five schools out of thirteen schools had significant correlations between CASS and TASS scores and regression squares were low in eight out of thirteen schools.

Based on the findings, the researcher suggested that for more valid and reliable continuous assessment scores the Federal and State Ministries of Education, teachers and even students had to apply non - statistical moderation, remove bias from scoring and take continuous assessment test more seriously.

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ABBREVIATIONS AND DEFINITION OF TERMS

CA (CONTINUOUS ASSESSMENT) -	Teacher Oriented assessment in senior secondary schools that make up 30% of the final senior secondary school examination scores.
PREDICTIVE VALIDITY -	Ability of continuous assessment scores to forecast accurately what a candidate may score at the senior secondary school examination.
CASS -	Continuous assessment scores.
CASS 1 -	Continuous assessment scores for senior secondary year one
CASS 2 -	Continuous assessment scores for senior secondary year two.
CASS 3 -	Continuous assessment scores for senior secondary year three.
SSCE	(Senior secondary certificate examination) - the examination students take at the end of three years of senior secondary school.
TASS (TERMINAL SCORES)	The scores of students who had taken the senior secondary school examination.
RAW CASS -	Continuous assessment scores received from various secondary schools by WAEC.
MODERATED OR ADJUSTED CASS -	Continuous assessment scores adjusted by using terminal scores. This is done by WAEC.
WAEC -	West African Examinations Council, the examining body that conducts the SSCE, and collects and incorporates continuous assessment scores in the final SSCE examination score

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1. Improvement of teaching strategies,
2. Ensuring better attainment of course content
3. Reducing examination tension and malpractice,
4. Creating a more conducive atmosphere for learning,
5. *Integrating character development formally into the final assessment.*

Unlike the older form of assessment, continuous assessment is not just a summative evaluation of student's performance, it is more of an integration of formative, diagnostic and summative evaluation.

Ogunniyi (1984), says formative evaluation is used to identify student's needs in order to guide them towards desired goals. Diagnostic evaluation, places the learner at the beginning of instruction and also detects the underlying causes of any learning problem. Summative evaluation, according to Gronlund (1985), is designed to determine the extent to which the instructional objectives have been achieved.

The National Policy on Education (1981), stressed the need for Continuous Assessment for the integration of all three types of evaluation. Continuous Assessment therefore, represents a continuing awareness of the development of the pupil over a period of time and the general build-up of cumulative judgement. CA not only measures achievement but also indicates the progress towards it. It is a means of gaining more and better information and this information is then used for developing the pupil. It is through such a long term evaluation of progress that an understanding of cause and effect of instruction can be seen and a valid picture of the pupil's total behaviour pattern developed.

1.2 STATEMENT OF THE PROBLEM

Most schools are aware of continuous assessment programme and this form of assessment is being implemented in schools. There is a need at this time to examine the continuous assessment system carefully and to determine its efficacy in the evaluation of students.

3. To determine the influence of gender in the predictive validity of CA in English Language in the schools.
4. To determine the influence of gender in the predictive validity of CA in Mathematics in the schools.

4.1 RESEARCH QUESTIONS

The Research questions for this study include the following:

1. To what extent does the final CA scores in English Language predict the terminal SSCE English Language scores in Secondary Schools in Kaduna metropolis ?
2. To what extent does the final CA scores in Mathematics, predict the terminal SSCE scores in the schools ?
3. To what extent does the gender of the students influence the predictive validity of CA for terminal scores for English Language ?
4. To what extent does the gender of the student influence the predictive validity of CA for terminal scores for Mathematics ?

1.5 HYPOTHESES

1. There is no significant relationship between CA scores and terminal scores in English Language in Government Secondary Schools in Kaduna metropolis.
2. There is no significant relationship between CA scores and terminal scores in Mathematics in Government Secondary Schools in Kaduna metropolis.

3. There is no significant relationship between gender of students and predictive validity of CA scores for English Language in the schools.
4. There is no significant relationship between gender of students and predictive validity of CA scores for Mathematics in the schools.

1.6 SIGNIFICANCE OF THE STUDY

Many evaluation experts, Mansaray in Esezobor (May 1991), for example, argued that the way CASS scores are obtained are not uniform in schools and so there is the tendency to overgrade or undergrade some students. This may in the long run affect final examination scores. Evaluation experts go further to say that continuous assessment may affect the quality and standard of certification, Adeyegbe (1992). In ascertaining the predictive validity of CASS scores, as against terminal scores one becomes sure of the quality and standard of certification.

If predictive validity of CASS scores is found ascertained, CA could become so dependable that in future, CASS scores could be used in place of Senior School Certificate Examination for final grading and certification. Furthermore, the study is significant in the sense that CA removes the fear and anxiety attached to the old school Certificate/GCE examinations, "Guidelines on Education Evaluation and Implementation (undated). Now, when a student enters the examination hall for his final examination, he is aware that 30% of his final grade has already been determined.

Conclusively, if CA forms 30% of the Senior Secondary School Certificate (SSCE) award, it is important to know its predictive validity for comparability, justice and equity. That allocation of 30% should be seen as not haphazard or unsystematic.

1.7 ASSUMPTIONS

1. All Senior Secondary Schools are aware of the importance of the National Policy on Education (1981) and the importance of continuous assessment in the total evaluation of pupils.
2. All schools have fully adopted continuous assessment evaluation system.
3. All schools always submit accurate and comprehensive records of student's CASS scores to the West African Examinations Council for computation of final results towards the end of the third year.

1.8 SCOPE AND DELIMITATION

The research was undertaken to find out the predictive validity of continuous assessment. The study was carried out in thirteen Government Secondary Schools in Kaduna metropolis only, for easy data analysis. Three Government schools were omitted from the research because of the peculiar nature of the schools' set up. They are Capital School, Command Secondary School and Airforce Secondary School. While Capital School is governed by a board separate from the Ministry of Education, the two military schools are directly under the military.

English Language and Mathematics were chosen because they are core subjects and every student must offer them for the final examination.

1.9 SUMMARY

This chapter introduced the continuous assessment system of evaluation and stated the problem. The objectives of the study were highlighted. Hypotheses and research questions were put forward, while the need for the study and assumptions made in the study were discussed.

CHAPTER TWO**REVIEW OF RELATED LITERATURE****2.1 WHAT IS CONTINUOUS ASSESSMENT?**

Hoste and Bloomfield in London Schools Council Examination Bulletin 31 of 1975, defined continuous assessment as the systematic collection of marks or grades over a period of time and their aggregation into a final grade. Continuous Assessment gives scope to the teacher to make use of a wide variety of assessment procedure appropriate to the subject. General course work, practical oral, project and field work can all have their place in a continuous assessment scheme.

The London Schools Council Examination Bulletin 31 of 1975, described continuous assessment as:

- (a) A device which deliberately allows for periodic assessment throughout a course and takes into consideration, progress towards the goal as well as success in reaching it.
- (b) The building up of a cumulative judgement about the performance of each individual.
- (c) A continuous updating of teachers' judgement about their pupils.

According to Yoloje (1984), continuous assessment is a method of evaluating the progress and achievement of students in educational institutions. It aims at getting the true possible picture of each student's ability and at the same time help each student to develop his abilities to the fullest. It is a method whereby the final grading of students take account in a systematic way their whole performance during a given period of schooling.

Ipaye (1982), says that in operating continuous assessment, varieties and types of assessment to be used are specified in advance for students to know, this could include class tests, essays or projects. In addition students will know how frequently the assessments will occur. They will know who will be involved in their assessment. All these make assessment systematic rather than sporadic. In continuous assessment there is an operational plan which indicates what measurements are to be made on students' performance. The intervals during the school year the measurement will be made and the nature of tools or instruments to be used for measurements are specified.

Related to the systematic characteristic of continuous assessment is its comprehensive nature. Usually, the main focus of any terminal examination is to find out the extent the stated goals and objectives of a given course of instruction have been met. Schools exist to help our children acquire useful and usable knowledge, facts and principles, cultivate culturally and socially desirable habits, attitudes and values that will help children develop necessary survival and vocational skills. Continuous assessment ensures that all these skills are assessed. The pupil is seen in his totality because decisions are made based on information obtained in the cognitive, affective and psychomotor domains of the child's abilities.

Thirdly, continuous assessment is cumulative because there is continuity in the collection and use of assessment data. Each data adds on to the previous ones and subsequent ones in a given ratio. Therefore, assessment at the end of a school term includes all or most of the assessment data during the term, these add on to those for the following term and so on. At the end of the year, all the data are considered for promotion to the next class. Those for one year add on to those for the next until the child graduates. This is the cumulative nature of continuous assessment.

The fourth characteristic of continuous assessment is that it is diagnostic in nature. Since continuous assessment characteristically implies unceasing monitoring of students' progress, the process could reveal a child's strengths and weaknesses. From continuous assessment, a teacher may discover the particular

areas a student is having problems in a course of instruction. The teacher will know the objectives the student has not achieved and how well he carries out specific tasks. These identified weaknesses are revealed to the student through continuous assessment and this leads to the fifth characteristic of continuous assessment.

Continuous assessment is guidance oriented or formative in nature. Once weaknesses are identified and communicated to the student, the teacher and perhaps the guidance counsellor in the school gives the student the opportunity to analyse these weakness along with him, the student is then helped to map out remedial programmes to help overcome the weaknesses. Remedial programmes can come in form of giving relevant assignments, paying individual attention to him in future work and so on.

Finally, continuous assessment is prognostic in nature. Continuous assessment should be able to predict how well the student will perform on similar tasks or even on completely different tasks in the future. This last characteristic of continuous assessment is the crux of this research work. Is continuous assessment serving this purpose in schools?

These characteristics are ideal of the continuous assessment system, but observations of the researcher show that continuous assessment records are usually not comprehensive and teachers do not take into account the diagnostic nature of Continuous Assessment. Students are so many in one class that a teacher cannot deal with individual student to know his strength and weaknesses which leads to the inability of the teacher to guide the student. Most schools do not even have functioning guidance counsellors.

2.3 IMPORTANCE OF CONTINUOUS ASSESSMENT

Awuwoloye, (1988), considers the following as very important in the advocacy of continuous assessment.

1. That assessment is an integral part of the teaching process. It is therefore reasonable that the teacher should be involved in the final assessment of the pupils he or she has taught. The old system whereby final assessment of child at the end of a particular level of education is done through a single final examination, set by an external body, tends to deny the teacher of the opportunity to participate in the final assessment of his or her pupils.
2. An assessment procedure which takes into account the child's performance throughout the entire period of schooling is likely to be more valid and more indicative of the child's over-all ability than a single examination.
3. The readiness of teachers to introduce innovations into their teaching is often frustrated by the fact that a final examination does not take account of such innovation. In a continuous assessment situation, the teacher's assessment of the performance of students on such innovations can become a part of the final assessment. The teacher will therefore be encouraged to be flexible and innovative.
4. An important aspect of instruction is the appropriate guidance of the child both in his learning and preparation for a career. A continuous assessment procedure facilitates such guidance functions in a school.
5. A teacher also needs to assess his own instructional methods from time to time in order to improve his performance. Data from continuous assessment can be useful to the teacher for such self assessment. Obanya (1979) supports views 4 and 5.

6. Finally, for several years now, Nigeria has been plagued with the occurrence of examination leakages and other examination malpractice, especially in the terminal examination by the West African Examination Council. Awuwoloye, Esezobor (May, 1991), have suggested that one reason for such a high incidence of examination malpractice is the fact that the single final examination is so crucial in deciding the future of the candidate that the temptation to ensure success by all means (fair or foul) is very high.

Though it is important to involve the teacher in the overall assessment of his students, one has to tread softly in this area. In the Nigerian context, teachers are not expert test item writers and so cannot set questions that would bring out exactly what they want from their student. Teachers are not free from bias. Teachers do not have the equipment to introduce innovations in their teachings, teachers do not use data from continuous assessment scores to guide their students. If continuous assessment is to take up an important role in school evaluation, these problems will have to be addressed.

Bajah (1984) described continuous assessment of students achievement as important in the sense that it is a measure of effective teaching. Without a form of assessment an educationist cannot have any objectives set out, nor does he have any means of attaining whatever objectives he can set out without assessment. The educator cannot know whether learners have been successful in achieving the objectives which the learning experience was designed to enable them attain. Assessment therefore is the key to knowing who has mastered what.

Ezewu (1985), viewed teaching as comprising of three major inseparable components of:

- a) Preparation of lesson or lesson plan
- b) Execution of the plan
- c) Assessment

According to him, a teacher who goes to the classroom to teach, without preparing a lesson plan, has nothing to assess and therefore has taught nothing. And if a teacher does prepare a lesson, executes the lesson but fails to assess, he cannot claim to have taught anything.

Assessment is important in making decisions on behalf of the student. Such decisions according to Sajobi (1985) include:

1. **Instructional decisions:** To be able to decide accurately what should be taught, at what time and to which students or what the students should be made to learn; the teacher needs relevant information from assessment procedures.
2. **Curricular decisions:** An educational institution or system may have to decide whether or not to introduce a certain new or alternative curricular programme, for example modern Mathematics taking the place of traditional mathematics. This kind of decision needs some experimental trial of the new programme and some administration of some kind of assessment at the end of it.
3. **Selection decisions:** The issue here is whether or not to admit a child to a school or some training programme. This kind of decision calls for the use of predictor tests or assessment.
4. **Placement and classification decision:** The school should be able to decide who should be in which class at a particular time. In addition, such decisions may involve assigning the students in a group to one of the alternative programmes for which they are most suited. This will be very difficult without relevant information from continuous assessment procedures.

5. Interest decisions: To decide whether or not a student will like to pursue some specified educational or training programme one needs accurate information from relevant assessment procedures.
6. Personality characterization decisions: Continuous Assessment with its stress on the affective domain is able to characterize a student by judiciously recording a student's emotional balance and inter-personal relationship with his peers and teachers.

More often than not, the only decisions made by schools from assessment results are placement and selection decisions. Teachers hardly change their method of instruction for a particular student who is weak say for example in comprehension.

The National Policy on Education did not mince words on the importance of continuous assessment in the teaching/learning process in section 2, sub-section 99:3, when it states that "At the end of the second three years course (senior secondary) a formal examination will be given but the performance during the three years will be weighed and taken into account for certification purposes." (Page 47).

Smith (1978), on his own part stresses the importance of continuous assessment in this quotation.

There are a number of reasons why internally assessed schemes of examining have come into being. In some cases they have arisen because of dissatisfaction with the external examination or some aspects of it, on the part of teachers (or occasionally the examining board itself.....) It is more likely, however that internal assessment is proposed because of a conviction that it is a more valid way of assessing the attributes or skills which are involved. Increased validity could result for two reasons:

first, because the assessment of the skills concerned may be difficult or impossible to achieve by external examination and second, because assessment on a single occasion may be a totally inadequate test of a candidate's overall competence (Page 5).

2.4 TECHNIQUES AND INSTRUMENTS USED FOR OBTAINING CONTINUOUS ASSESSMENT

Continuous assessment is mainly teacher oriented and that is why in some countries continuous assessment is referred to as "teacher assessment". In the handbook published by the Federal Ministry of Education on continuous assessment (1985), detailed guidelines on how teachers should conduct continuous assessment are outlined.

In the cognitive domain of assessment, the use of tests, projects and assignments have been suggested. For the psychomotor and affective domains, observations, self-report inventories, interviews, questionnaires, rating scale are suggested. All these techniques point to the comprehensive nature of continuous assessment.

1. COGNITIVE DOMAIN

The cognitive domain of behaviour involves mental/intellectual skills, abilities, knowledge and understanding. Cognitive domain has been further categorized into the following six major classes by Bloom (1956) -knowledge, comprehension, application, analysis, synthesis and evaluation.

Knowledge according to Bloom is the ability to remember/recall all previously learned material. This represents the lower level of learning outcomes in the cognitive domain.

Comprehension is the ability to grasp the meaning of material shown by translating material from one form to another or to be able to interpret the material. This learning outcome goes beyond the simple remembering and represents the lowest level of understanding.

Application, refers to the ability to use learned material in new and concrete situations. Learning outcomes in this area require a higher level of understanding than those of comprehension.

Analysis, refers to the ability to break down material into its component parts so that its organizational structure may be understood. This includes, identification of parts, relationship between parts and recognition of the organizational principles involved.

Synthesis, is the ability to put parts together to form a whole new learning outcome. This area stresses creative behaviour on the part of the learner.

Finally, evaluation is the ability to judge the value of material for a given purpose. Learning outcomes in this area are highest in the cognitive hierarchy because they contain elements of all of the other categories including value judgements based on clearly defined criteria.

TECHNIQUES & METHODS

A. TESTS: Tests are written down questions to be answered by students in examination conditions. They could come in the multiple choice or essay form. It is suggested in the handbook on Continuous Assessment (1985), that for a teacher to construct test items properly, he must carry out the following processes:

- i. Formulation of objectives
- ii. Construction of a blue print or table of specification
- iii. The actual writing and selection of test items

In formulation of objectives, clear statements of the desired student behaviour must be made. For example, in constructing a geography test on the solar system, the objectives may be stated as follows:

The student will

- i. identify the members of the solar system;
- ii. specify the relative location of each planet in the solar system;
- iii. specify the time it takes each planet to complete a revolution round the sun;
- iv. state the length of one calendar year on each planet;
- v. compare the relative surface temperatures of the planets using their respective distances from the sun.

The test blue print is a two-dimensional table showing the contents on one axis and the educational objectives on the other. In determining the proportion of the items to be allocated to each content, consideration of the amount of time spent in the teaching is important.

In writing test items, it must always be at the back of the teacher's mind that a test is more than a mere collection of items which can be scored numerically. Each item of a test must separate those who know from those who do not know. So the actual writing of the test items and the selection of items onto the test paper require some professional skills. Such skills include:

- i. Avoiding all forms of ambiguity
- ii. Avoiding items that give away other items
- iii. Avoiding using negative statements
- iv. Giving clear instructions
- v. Arranging items in ascending order of difficulty
- vi. Specifying the degree of accuracy required for credit.

After items have been written, they are then edited, trial-tested and analysed before final selection.

- B. **ASSIGNMENTS:** These are specific tasks meant to be completed within a short time. They are usually meant to reinforce a previous lesson or to prepare for a forthcoming one. Assignments provide students the opportunity for practice in independent work. Where an assignment involves a written work, the objectives of the assignment must be stated and then its assessment will follow the same procedure as for other written work.

- C. **PROJECT:** These are assignments on a large scale which are meant to be completed within a much wider time span than assignments. They can be used to cover a lot of activities and they have a tendency of linking the cognitive, the psychomotor and the affective domains of learning because they could be used to assess all three domains. Project work involves collection and analysis of data, engaging in open-ended experiment, identifying and endeavouring to solve problems in fields of learning and investigating underlying concepts and principles.

In schools, test items do not go through these rigorous procedure, test items are hardly trial-tested, however this situation in schools can be improved if heads of departments sit with their teachers more often to develop and test items. Assignment and projects are more often used in schools.

2. **PSYCHOMOTOR DOMAIN**

The psychomotor domain of behaviours refers to manual dexterity and co-ordination/synchronization of knowledge, the senses and the motor organs.

3. AFFECTIVE DOMAIN

The Affective domain of behaviours refers to the emotional aspect of learning experience, including attitudes, values and social relationship.

TECHNIQUES & METHODS OF OBTAINING CA SCORES FOR PSYCHOMOTOR & AFFECTIVE DOMAINS

A. OBSERVATION - This is a very important technique for the Psychomotor and Affective domains. Teacher can learn a lot about a child's interests, attitudes and ability to accomplish particular tasks through observation. According to the handbook on continuous assessment (1985), the technique has the advantage of giving a record of actual behaviour of child which should be free of the teacher's bias or interpretation. The handbook goes further to explain the procedure for observation, which are to:

- i) identify the quality or behaviour to be observed.
- ii) determine the appropriate activities which could make the children exhibit the quality already identified.
- iii) determine method of observation, for example direct observation by the class teacher, use of a participant as an observer which could be another child in the same group.
- iv) Then finally, making decisions in respect of what has been observed.

This decisions should be based on several observations, in as many situations as possible so as to establish a regularity of the behaviour before making any conclusions.

- B. INTERVIEWS** - This technique provides for direct observation. In this technique the student is confronted by the observer/councillor or teacher and this confrontation could result in the student being more cautious in the way he answers questions than he will normally be.

Interviews may be either structured or unstructured in nature. In structured interviews, an interview schedule which contains set questions to be asked in specific order are used. The answers are written down or coded.

In unstructured interviews, the order and the exact form of questions are not specified, but then a general idea of what is expected is known by the interviewer. The interviewer encourages the interviewee to expand on his answers by asking leading questions.

- C. SOCIO-METRIC-TECHNIQUE** - This is a technique of assessing the pattern of social relationship in a group of students and finding out to what extent a student is acceptable among his peers in a given situation. A simple procedure to test the acceptability of a student in class is to ask each member in class whom he will like to seat besides him in class.

However, it is important to note that in the sociometric technique, any information one gets is only true for that occasion and for that basis of choice. If another basis of choice is put to the members of the class, the pattern of the socio-gram or socio-metric table may change completely. Even the same basis of choice could result in a completely different pattern at another time. The pattern of social relationship in a class is never constant for all time or for all reasons.

- D. **QUESTIONNAIRES** - This is a series of questions presented to the student in a written form and which the student is expected to answer in writing. A questionnaire may be made up of statements in the affirmative which can be agreed or disagreed with. For example "You are very noisy in class". The child may write "Yes" or "No", depending on whether or not he thinks that the statement is true of him. A questionnaire may also be made up of incomplete statements that the student is expected to complete.
- E. **RATING SCALE:** This is another type of question that one may find in questionnaires. This type, requires the child to say "how much" he agrees with a statement. For example:

My classroom is the neatest in the school

Disagree

Not sure

Agree

The child will put a mark in the space which tallies with the way he feels. This kind of questions rate, so the instrument is a rating scale.

Other techniques include the checklist, where the pupil is given a list of items from which he is requested to tick (or check) those that apply to a particular situation and inventories where the student is required to rank the items on a check-list.

Singularly or in a combination of two or more, these techniques can be used to get better and more accurate information about a child's cognitive, psychomotor and affective domains of learning. These methods and techniques are not largely used in secondary schools, where they are used the scores are not incorporated into continuous assessment scores.

2.5 CONTINUOUS ASSESSMENT AS A PREDICTOR

Prediction has been defined by Micheal (1969), as an attempt to forecast an event or outcome on the basis of data or information considered relevant to the unobserved event. He further claims that most predictions in the scientific world yield information about unobserved event in numerical form with a margin of the error frequently specified. To minimise errors of observation the physical, biological or behavioural scientists manipulates phenomena under controlled conditions, typically in a laboratory setting. He may try to test empirically the validity of hypothesis or predictions derived from theories to modify existing theories in the light of his findings or to generate new ones.

Kerlinger (1976), writing on prediction contends that the word "prediction" is usually associated with the future, even though the prediction in science does not necessarily mean forecast.

Mergenau (1950), thinks that one predicts from an independent variable to a dependent variable. One predicts the existence or non-existence of a relation.

Glesser (1960), describes prediction as the primary purpose of all scientific inquiry. He goes further to say that prediction in education concerns the learning capacity the potential growth, success and adjustment of the human organism. Decision problems according to Gleser, requiring predictions are of three types - classification, selection and guidance. Classification is the assignment of the individual into a category to which he best belongs and where he has the highest potential for self expression. Selection on the other hand involves the categorization of individuals in a way that would indicate the probability of success on a desired task whilst guidance provides information regarding abilities, interests and the chance of success in reaching various goals.

Continuous assessment as a predictor therefore is the ability of continuous assessment scores to forecast what scores the candidates can get in the senior school certificate examination.

2.6 EXPERIENCES OF FOREIGN COUNTRIES

From Europe to Australia, and the far East there is a tendency for assessment to be increasingly handed over to teachers. Ottobre (1977), explains that in many countries such as Anglophone Africa and India, teachers are playing an increasingly important role in the setting and marking of examination. In France and New Zealand, the process has gone further still with whole sections of the traditional examining system being replaced by teacher assessment or what we in Nigeria call continuous assessment.

Thompson (1974), has explained this trend as being the result of an increasing level of trust and confidence in schools and teachers. Whilst this may be true in some countries, wide spread concern about school assessment standard and teachers' partiality seems to deny this in Nigeria.

However, the explanation of this trend is more likely to be a pragmatic one; that a more detailed and continuous record is more useful, both for pupil motivation and the detail it conveys. There is also the replacement of the emphasis on formal external assessment or examination by the new emphasis on broad-based teacher conducted assessment, which will allow a greater concern in assessment procedures with diagnosis and motivation.

Akinwumiju (1984), in a seminar paper delivered at the University of Ibadan, critically examines continuous assessment in some foreign examining bodies:

(i) **The Scottish Examination Board:**

The board uses rank-order method of moderation in combining scores from Teacher assessment with the scores from the examining board's examinations.

(ii) The Joint Matriculation Board (UK)

Established to regulate and conduct matriculation examination for admission of students into the Universities. In some of its examinations, the Board uses teacher assessment, employing statistical moderation procedures for merging the marks from Teacher assessment with those from its own examination.

(iii) Associated Examination Board

Associated Examination Board grew out of the desire of the City and Guilds of London Institute (UK) to provide G.C.E. Examination for candidates who were not in regular or formal education and was established in 1955. AEB makes use of Teachers' assessment which constitutes from 20 - 25% of the total assessment. This Teachers' Assessment is moderated using the rank order technique.

(iv) Certificate of Secondary Education(C&E) Mode III:

This is an examination and assessment based award, established in England and Wales. It records pupil achievement at the end of the five year compulsory secondary education period, normally taken by the lower 60 percent of pupils in terms of cognitive ability. The award may be based in whole or part on continuous assessment. Turton (1988), stressed that the certificate for Secondary Education allowed for a measure of flexibility in the assessment of pupils. The mode III allowed schools to devise their own Syllabuses and assessment system although they were still subject to approval by the examining body.

(v) General Certificate of Secondary Education:

This CSE was scrapped and the replaced by GCSE) General Certificate of Secondary Education in Britain. This new examination features continuous assessment in all subjects and a final examination.

2.7 CONTINUOUS ASSESSMENT - NIGERIAN EXPERIENCE

The 1982/83 academic year marked the introduction of the 6-3-3-4 system of education and the implementation of continuous assessment in Nigerian schools especially at the secondary level. Prior to that time, several seminars and workshops had been held at zonal and state levels to familiarize teachers, head teachers and education evaluators with the nature of continuous assessment.

At the conclusion of the first seminar held in March/April 1979, the steering committee on continuous assessment was constituted. This committee was responsible for the handling of all technical aspects of continuous assessment. It was made up of the representatives of the Federal Ministry of Education, the Universities and the West African Examinations Council (WAEC). These individuals served as resource persons at subsequent seminars and workshops on continuous assessment. These seminars and lectures culminated in the production of the Federal Ministry of Education Handbook on Continuous Assessment (1981).

According to Ipaye (1982), teachers all over the country have shown increased efforts in assessing their pupils, but he is quick to add that the practice is still not satisfactory and that the continuous assessment practice is not yet uniform in terms of how many tests to give within the term.

Adeyegbe (1992), felt that the introduction of continuous assessment in the secondary school system has affected the mode of operation of the West African Examination Council in terms of its marks assemblage and certification processes. Unlike it was done previously with SC/GCE Examination, certification does not now depend solely on marks obtained from the terminal examination but rather, students' performance in continuous assessment is combined with that obtained in the external examination in the ratio 30:70

Despite efforts on the part of the Federal Ministry of Education and several other educational institutions to integrate the continuous assessment programme into our educational system, teachers and parents and more importantly, experts in educational measurement, worry about the dilution of

WAEC's standards for certification purposes, using this system at secondary level. Mansaray (1988) declared, "We have all enjoyed considerable respect nationally and internationally and would not want a break."

Awuwoyoye (1988), gave some criteria which, if followed can allay such fears. He said that for the successful combination of continuous assessment and terminal scores, there is the need to ensure:

- i) that all components are valid and reliable
- ii) that the actual and planned weighting should coincide within reasonable limits.
- iii) that the standard of the teacher assessment should be reasonably comparable from centre to centre (or assessor to assessor).

Awuwoyoye's criteria were rather steep. For tests that are not standardized how can one be sure of its reliability and validity? And for teachers who set diverse standards in their various schools it could be impossible to compare the standard of tests across schools.

Esezobor (May 1991), warned, however, that even when the first two of Awuwoyoye's conditions are met there is still the difficulty of variation of CASS scores across schools and this is due to two main reasons:

- (a) differences in the quality of tests and other assessment instruments used in different schools
- (b) differences in the procedures for scoring and grading students responses in the various schools

To correct for variation, Esezobor, continues, WAEC had proposed the use of a combination of nonstatistical and statistical moderation of Continuous Assessment tests and scores.

(1) NON-STATISTICAL MODERATION

A most common form of non-statistical moderation is "Moderation by Inspection." Esezobor (Sept. 1991), stressed that moderation by inspection involves the introduction of a person whose responsibility it is to inspect at least some of the internally assessed work in order to satisfy himself that the assessment is fair and if it is not to recommend changes.

The inspection may be carried out either by visiting the school or by remarking work sent to the moderator. The work of a sample of candidates can be scrutinized this way, for the marks of all candidates to be confirmed or adjusted on the evidence of the sample. Where a school has a small entry or where special circumstances prevail, the work of all candidates at the school may be scrutinized. Whichever procedure of inspection is adopted depends on:

- (a) the size of the subject entry and the amount of travel that would be involved in visiting schools.
- (b) whether the assessment has to do with the process or the product.
- (c) whether the product is
 - (i) Perishable
 - (ii) Light enough to be sent by post

The work of the moderator involves:

- (i) Checking
 - a random sample of the work of the pupils
 - tests taken
 - marking schemes used in grading the tests
- (ii) Marking or recommending changes to the teacher's assessment.

Non-statistical moderation is the responsibility of the Ministries of Education. The guidelines for carrying out the moderation are, however, prepared by WAEC. Because of costs and personnel problems, non-statistical moderation is currently not in use on a large scale in Nigeria. Esezobor (Sept. 1991).

Though it is practicable to send inspectors to schools from the inspectorate division of the Ministry of Education, but the increasing number of schools and students is not proportionate with the number of inspectors available in the Ministry. Schools in Kaduna metropolis witness two visits or less from Inspectors in a school year which is not good enough. For a school to be properly inspected, an inspector for each subject should visit a school at least once a term.

(2) STATISTICAL MODERATION

This is done solely by the West African Examinations Council. Esezobor (Sept. 1991), says that the Council's statistical moderation package makes the following assumptions:

- (a) that WAEC's terminal tests (TASS) will constitute the moderating instrument for all continuous assessment scores.
- (b) that based on WAEC's uniform tests, it can expect to stabilize the variability factor of CASS scores from schools where CASS tests taken are likely to be significantly different.
- (c) that the shape of the marks frequency curves for scores on the TASS (moderating instrument) will be identical to that of the CASS and that both schemes of assessment will be equally reliable with strongly correlated means of averages.

In statistical moderation, CASS marks for a given school in a given subject are adjusted such that:

- (i) the adjusted CASS marks are comparable to the scores of the candidates from the school on the moderating instrument.
- (ii) candidates' ranks on CASS as sent by the school are preserved after the adjustment.

WAEC uses two methods of statistical moderation, these are Equating and Mapping.

A. EQUATING OR SCALING METHOD

Here, the mean and standard deviation of CASS are equated to those of TASS. The method is a linear transformation which is adequate provided CASS and TASS satisfy the following conditions:

- (i) identical frequency distribution
- (ii) equal reliability
- (iii) high correlation with each other

(Note: All these are assumed as explained in a, b & c above).

Equating formula

$$\text{CASS (MOD)} = \frac{\text{TASS (SD)}}{\text{CASS (SD)}} \text{CASS RAW} - \text{CASS MEAN} + \text{TASS MEAN}$$

If the distributions of CASS and TASS have proportionally the same shape (as should occur between parallel forms of the same test/assessment), then the distribution of the moderated CASS and that of TASS are identical and scores on them are comparable.

The equating method is used when a subject entry in a given school is large (20 or above). When subject entry is small, the estimates of the equating parameters are unstable.

Table 2.1

TASS and CASS marks in English Language of seven candidates presented by a school.

CANDIDATE	TASS	CASS
001	53	38
002	67	46
003	60	30
004	74	62
005	81	54
006	39	22
007	46	14

to be able to apply the equating formula, the mean and standard deviation of TASS and Raw CASS are computed.

	TASS	CASS
MEAN	60	38
SD	14	16

If the above statistics is substituted into the equating formula, the equation for computing moderated CASS scores in English Language for the given school is given by

$$\text{CASS (MOD)} = \frac{14}{16} (\text{CASS RAW} - 38) + 60$$

To obtain the moderated CASS mark in English Language for any candidate from the centre, one needs only to substitute the candidate's raw CASS mark into the Equation. Thus for candidate 005, for example, whose raw cass mark is 54, the moderated CASS mark is:

$$\begin{aligned} \text{CASS (MOD)} &= \frac{14}{16} (54 - 38) + 60 \\ &= \frac{7}{8} (16) + 60 \\ &= 14 + 60 = 74 \end{aligned}$$

Table 2.2 MODERATED CASS SCORES FOR THE SEVEN CANDIDATES THROUGH THE EQUATING METHOD

CANDIDATE	TASS	CASS	MODERATED CASS
001	53	38	60
002	67	46	47
003	60	30	53
004	74	62	81
005	81	54	74
006	39	22	46
007	46	14	39

At this point it is important to note that:

1. Since the size of candidates in this example is small, ordinarily, mapping should be used and not the equating method.
2. Each centre will have its own equation for each subject.
3. Because there are three sets of raw cass marks (SS1, SS2, SS3) received from each school for each subject, where equating is applicable to a centre, there will be three equations set up for calculating the moderated CASS marks of the candidates from the centre in the subject in question.

This equating method is disadvantaged because of the assumptions made of identical frequency distribution between CASS and TASS scores, equal reliability between CASS and TASS scores. More often than not correlations between CASS and TASS scores are low and insignificant they may not have identical frequency distribution and do not have equal reliabilities. The method therefore is hardly a fair one.

B MAPPING METHOD

The mapping method, also called the ranking technique is used when the subject entry is small. In mapping, the results on the moderating instrument (TASS) of all candidates of a school in a given subject are ranked. The candidates are also ranked in the order determined by the CASS. The top candidate on CASS is then given a mark equivalent to the top mark obtained in the group on the moderating instrument, the next highest moderating test (TASS) mark is given to the candidate ranked second by the school, and so on down the rank order for CASS.

Example

Table 3 (a) and 3(b) present TASS and CASS marks of seven candidates each in schools A and B.

School A: Brilliant students, but rather strict teacher, compared to TASS scores CASS scores are low.

Table 2.3 (A) **STUDENTS CASS SCORES IN SCHOOL A, ADJUSTED THROUGH THE RANK METHOD**

CANDIDATES	TASS		CASS		ADJUSTED CASS	
	MARK	RANK	MARK	RANK	MARK	RANK
001	53	5	38	4	60	4
002	67	3	46	3	67	3
003	60	4	30	5	53	5
004	74	2	62	1	81	1
005	81	1	54	2	74	2
006	39	7	22	6	46	6
007	46	6	14	7	39	7

School B: Weak students, but the teacher is used to giving easy tests and rather generous in awarding marks. High CASS.

Table 2.3 (B) **STUDENTS CASS SCORES IN SCHOOL B, ADJUSTED THROUGH THE RANK METHOD**

CANDIDATES	TASS		CASS		ADJUSTED CASS	
	MARK	RANK	MARK	RANK	MARK	RANK
001	21	7	56	7	21	7
002	30	4	62	6	24	6
003	24	6	74	4	30	4
004	27	5	68	5	27	5
005	39	1	86	2	36	2
006	36	2	92	1	39	1
007	33	3	80	3	33	3

The moderated (adjusted) CASS marks of the candidates in each of the schools have been obtained following the mapping procedure. Thus, in school A, if one consider candidate 005, for example, one discovers that his rank on CASS is 2.1 looking under TASS column to find the TASS score with rank 2, this score is 74, therefore score 74 is assigned to candidate 005 as his moderated CASS mark.

Similarly, candidate 001 has raw CASS score of 38 which has rank 4. Since the TASS score with rank 4 is 60, 60 is assigned to candidate 001 as his moderated CASS mark.

Both Equating and Mapping adjust the CASS strictly in line with overall performance on the moderating instrument without altering the order of merit.

The researcher wonders whether the statistical moderation especially the mapping method used by WAEC is fair. Looking at school A again - Candidate 001 got 38% in CASS with a rank of four, but the candidate did not do as well in TASS. Can WAEC assume that he deserves 60% instead of 53% which he actually got, just because rank 4 TASS is 60%?

2.8 SUMMARY

This chapter has reviewed the subject of continuous assessment - its nature, how to obtain it and its importance. Experiences of Nigeria and some foreign countries in the use of continuous assessment and some limitations were also reviewed.

CHAPTER THREE**RESEARCH METHODOLOGY****3.1 INTRODUCTION**

This chapter is made up of the description of the research methodology, the population and the sample of the study. The sources of data are given and the statistical procedure used for analysis of data are described. As Afolabi (1990), rightly explains, this chapter is the "operational blue print" which the researcher employs in accomplishing the objectives of the study.

3.2 POPULATION

The population was made up of senior secondary school students who graduated in November 1990. The target population of the research was the government owned senior secondary schools in Kaduna metropolis, the students were six thousand four hundred and sixteen in number. Three schools were omitted from the government owned schools, the schools were Capital School, Command Secondary School, and Airforce Secondary School in Kaduna metropolis.

3.3 SAMPLES AND SAMPLE SIZE

Cluster sampling was done and samples were drawn from government owned schools in Kaduna metropolis.

The government schools included:-

Table. 3.1 LIST OF SCHOOLS INCLUDED IN THE SAMPLE

S/No.	CENTRE No.	No. OF CANDS.	SAMPLE
001	12101	624	48
002	12122	252	20
003	12127	667	50
004	12133	325	25
005	12173	432	35
006	12184	710	55
007	12185	244	19
008	12501	181	15
009	12503	930	74
010	12507	510	40
011	12509	643	50
012	12613	261	20
013	12626	637	49
		6416	500

The random sampling table from R. V. Krejcie and D. W. Morgan (1970), was used to enable the researcher know what the sample size will be. From a population of six thousand four hundred and sixteen candidates, the sample size was approximated to five hundred candidates. To obtain sample from individual schools, the constant quantity of 7.7 was multiplied by the number of candidates in each school.

3.4 SOURCES OF DATA

Towards the end of the third year in senior secondary school, schools send compiled continuous assessment scores to the West African Examination Council Offices in all States of the Federation. The SSCE Examination scores or terminal scores (TASS) are those grades the candidates get in their final examination. The papers unlike in CA, are marked by external examiners, who are teachers in other States and not where those candidates are from.

In the Council, moderated CASS scores are incorporated into the SSCE examination scores to produce the final results for candidates. All data therefore was collected from the computer division of the West African Examinations Council which stocks all scores of candidates.

3.5 VALIDITY AND RELIABILITY OF DATA

(i) CONTINUOUS ASSESSMENT:

Validity of CASS scores is difficult to determine because each school uses its own tests and so, standard of setting test items and objectivity in marking varies from teacher to teacher. So, scores differ in standard from one school to the other.

To make CASS scores received from schools reliable however, the West African Examinations Council, use statistical moderating devices to standardize the raw CASS scores before they are incorporated into the terminal scores. Moderation of continuous assessment as explained in chapter two is intended to introduce a common standard and bring the assessments of individual teachers in various schools in line with this standard.

(ii) **WAEC EXAMINATION SCORES (TERMINAL SCORES)**

Scores from this examining body are valid and reliable. Test items are set by experts and are pre-tested before actual use, this is a procedure called "trial testing"

In marking of scripts, a two-tier co-ordinating approach is practiced, wherein groups of very senior and experienced examiners for each subject meet, mark sample scripts and discuss the main points of the final marking schemes to be used based on the performance picture. Difficulties arising from the interpretation of certain questions are thrashed out, recommended modes of points for award of scores are arrived at through a consensus. Overall guidelines for the benefit of the remaining thousands of assistant examiners are worked out. The Assistant Examiners will participate at a later stage in the co-ordination and marking process.

During the second stage of the marking process Chief Examiners and the team leaders orientate groups of Assistant Examiners, on the recommended marking schemes. Here again sample script are marked and fundamental issues for the marking discussed so as to arrive at some operational scheme. At this level live scripts are then assessed and scores awarded. Decisions thus reached help guard against inadvertent penalties or undue rewards to candidates.

The process does not stop at these two levels, Assistant Examiners are subjected to assessment by their supervisors or Team Leaders who must remark samples of marked scripts so as to ensure that the guidelines are not violated by the Assistant Examiners. Finally, there are also "checkers" of marks who are to detect any wrong additions, omissions or wrong entries of individual marks on the mark sheet.

3.6 DATA ANALYSIS PROCEDURE

Analysis of data was carried out in the following ways:-

- (a) Calculation of correlation coefficient between TASS and CASS to determine the extent to which the scores were related. This was used for hypothesis one through four.
- (b) Regression analysis was done to find out the predictive validity of CASS. Regression analysis was used to answer research questions one through four.

3.7 SUMMARY

This chapter has attempted to describe the population and sample to be used in the research. Sources of data, data collection procedure and data analysis procedure were described.

CHAPTER FOUR

4.0 DATA PRESENTATION AND ANALYSIS

4.1.0 INTRODUCTION

A total of five hundred candidates were drawn from a population of six thousand, four hundred and sixteen students from thirteen senior secondary schools in Kaduna metropolis. Out of the five hundred students, two hundred and seventy were male students, while the remaining two hundred and thirty were female. The minitab statistical package was used to analyse the data.

For each of the five hundred students, raw continuous assessment scores (CASS) and SSCE terminal scores (TASS) were obtained. These raw scores, for English Language and Mathematics were collected from the Computer Services Division of the West African Examination Council.

The objective of this study was to determine the level of prediction of terminal scores (TASS) at the end of senior secondary school by continuous assessment scores (CASS). Data was analysed for each of the thirteen schools and all schools were lumped together for group analysis.

Unlike Adeyegbe's study (1992) and Paul Turton's (1988) that ended in only a correlation of CASS and TASS scores, the present study went further to find out the predictive validity of CASS scores for TASS by the application of regression analysis.

4.2 HYPOTHESIS I

There is no significant relationship between CASS scores and TASS scores in English Language in Government Secondary Schools in Kaduna metropolis.

For the purpose of resolving this hypothesis, simple correlation was used to ascertain the degree of relationship between TASS scores and CASS scores.

1. SCHOOL 001

Out of six hundred and twenty four students who sat for the final examinations, forty eight were selected through random sampling.

Table 4.1 **CORRELATION OF CASS & TASS SCORES FOR ENGLISH IN SCHOOL 1**

	ENG.CASS	ENG.CASS 2	ENG. CASS 3
ENG. CASS 2	0.840*		
ENG. CASS 3	0.856*	0.915*	
ENG. TASS	0.331*	0.399*	0.427*

*Significant, $P < 0.05$, $t_{crit} = 2875$

At 0.05 level of significance correlation between CASS 2 & 3 and TASS was significant at $r=0.915$. Though correlations between the three CASS scores and TASS were lower than between the three CASS scores at 0.331, 0.399 & 0.427 they were still significant at 0.05 level of significance respectively.

4.3 RESEARCH QUESTION 1

To what extent does the CASS scores in English Language predict the terminal SSCE English Language scores in senior secondary schools in Kaduna metropolis?

For the purpose of answering this question, multiple regression analysis was used. The regression equation required to predict terminal scores from

CASS scores was:

$$\text{TASS} = 23.0 - 0.081 (\text{CASS } 1) + 0.058 (\text{CASS } 2) + 0.287 (\text{CASS } 3).$$

In this equation 23.0 is a constant. The other coefficients were multiplied with candidate's continuous assessment scores for year 1, 2 & 3. From the equation the coefficient for year 1 indicated that the regression plane had to be adjusted 0.081 below to reflect the real relationship between CASS and TASS. Also the coefficient for year 2 and year 3 had to be adjusted to 0.58 and 0.287 respectively above the regression plane to reflect the real relationship between CASS and TASS. It is important to note at this point that each school has its own regression equation for each subject.

EXAMPLE - CANDIDATE 415

$$\text{TASS} = 23.0 - (10)(0.081) + (11)(0.058) + (12)(0.287)$$

Predicted score - 26.272

Regression squares (R-Sq) for this school was 18.8% which means that 18.8% of the variations got in the terminal assessment was due to continuous assessment scores. It is important to note at this point that the higher the R-sq, the more accurate the prediction of terminal scores.

2. SCHOOL 002

Table 4.2 CORRELATION OF CASS & TASS SCORES FOR ENGLISH SCHOOL 002

	ENG.CASS	ENG.CASS 2	ENG. CASS 3
ENG. CASS 2	0.664*		
ENG. CASS 3	0.566*	0.429	
ENG. TASS	-0.111	0.239	-0.086

* Significant $P < 0.05$,

$r_{crit} = .4327$

Between the terminal score and the three CASS scores, there was negative correlation of -0.111 for CASS 1 & TASS, -0.239 for CASS 2 & TASS and -0.086 for CASS 3 & TASS. These negative relationship between CASS and TASS indicates that CASS scores were probably awarded without any tests or assignments at all.

Regression equation was

$$\text{TASS} = 40.9 + 0.163(\text{CASS1}) - 0.441(\text{CASS2}) - 0.013(\text{CASS3})$$

Candidate 13

$$\text{TASS} = 40.9 + (52)(0.163) - (55)(0.441) - (55)(0.013)$$

Predicted score = 24.406

R-sq = 6.1%

3. SCHOOL 003

Table 4.3 **CORRELATION OF CASS & TASS SCORES FOR ENGLISH IN SCHOOL 003**

	ENG.CASS 1	ENG.CASS 2	ENG. CASS 3
ENG. CASS 2	0.623*		
ENG. CASS 3	0.354*	0.502*	
ENG. TASS	0.297*	0.296*	0.213

* Significant $P < 0.05$ $r_{crit} = .2875$

Compared with the critical value, all correlations between CASS scores and TASS are significant except for CASS 3 and TASS where correlation was 0.213.

Regression equation was

$$\text{TASS} = 7.47 + 0.192(\text{CASS1}) + 0.127(\text{CASS2}) + 0.099(\text{CASS3})$$

Candidate 55

$$\text{TASS} = 7.47 + (43)(0.192) + (44)(0.127) + (40)(0.099)$$

Predicted score = 25.274

R-sq = 11.2%

The R.sq at 11.2% shows that 11.2% of the variations in the terminal score was due to CASS scores

4. SCHOOL 004

Table 4.04 CORRELATION OF CASS & TASS FOR ENGLISH IN SCHOOL 004

	ENG.CASS 1	ENG.CASS 2	ENG, CASS 3
ENG. CASS 2	0.686*		
ENG. CASS 3	0.689*	0.664*	
ENG. TASS	0.643*	0.680*	0.707*

* Significant P < 0.05

r_{crit} = .4227

All correlations here were significant. The correlation between TASS and CASS 3 was highest at 0.707 and significant at 0.05. CASS scores in this school therefore reflected significant relationship with TASS scores.

Regression Analysis

Regression equation was

$$\text{TASS} = -0.46 + 0.090(\text{CASS1}) + 0.209(\text{CASS2}) + 0.326(\text{CASS3})$$

Candidates 118

$$\text{TASS} = -0.46 + (41)(0.090) + (49)(0.209) + (57)(0.326)$$

Predicted score = 32.053

R-sq = 59.0%

At 59.0% the regression squares here is quite high which means that 59.0% of the variation in TASS scores was due to continuous assessment scores.

5. SCHOOL 005

Table 4.5 **CORRELATION OF CASS & TASS FOR ENGLISH IN SCHOOL 005**

	ENG.CASS 1	ENG.CASS 2	ENG. CASS 3
ENG. CASS 2	0.509*		
ENG. CASS 3	0.492*	0.572*	
ENG. TASS	-0.159	-0.175	-0.117

* Significant $P < 0.05$ $r_{crit} = .3494$

Correlation between CASS from year to year were all significant at 0.05 but correlation between the three CASS and TASS had negative significance. CASS 1 & TASS had -0.159, CASS 2 & TASS had -0.175

and CASS 3 & TASS had -0.117.

The negative correlation shows that CASS scores were probably awarded haphazardly.

Regression Analysis

Regression equation was

$$\text{TASS} = 32.7 - 0.067(\text{CASS1}) - 0.097(\text{CASS2}) + 0.002(\text{CASS3}).$$

Candidate 217

$$\text{TASS} = 32.7 - (54)(0.067) - (61)(0.097) + (54)(0.002)$$

Predicted score = 23.273

R - Sq = 3.7%

6. SCHOOL 006

Table 4.5 **CORRELATION OF CASS & TASS FOR ENGLISH SCHOOL 006**

	ENG.CASS 1	ENG.CASS 2	ENG. CASS 3
ENG. CASS 2	0.429*		
ENG. CASS 3	0.256*	0.380*	
ENG. TASS	0.239	0.073	0.104

* Significant $P < 0.05$ $r_{crit} = .2732$

Correlation between CASS 1, 2 & 3 and TASS were low and insignificant at 0.05 level of significance at 0.239, 0.073 and 0.104 respectively.

Regression Analysis

Regression equation was

$$\text{TASS} = 12.2 + 0.275(\text{CASS1}) - 0.063(\text{CASS2}) + 0.058(\text{CASS3})$$

Candidate 94

$$\text{TASS} = 12.2 + (53)(0.275) - (49)(0.063) + (60)(0.058)$$

Predicted score = 27.168

R - Sq = 6.1%

7. SCHOOL 007

Table 4.7 CORRELATION OF CASS & TASS FOR ENGLISH IN SCHOOL 007

	ENG.CASS 1	ENG.CASS 2	ENG. CASS 3
ENG. CASS 2	0.495*		
ENG. CASS 3	0.486*	0.523*	
ENG. TASS	0.565*	0.715*	0.802*

* Significant $P < 0.05$ $r_{crit} = .4438$

In this school correlations were significant and highest between the TASS and CASS scores at 0.05 level of significance. Between CASS 1 & TASS was 565, between CASS 2 & TASS was 0.715 and between CASS 3 & TASS was 0.802. All other correlations between the three CASS scores were also significant at 0.05 level of significance.

Regression Analysis

Regression equation was

$$\text{TASS} = -20.3 + 0.080(\text{CASS1}) + 0.339(\text{CASS2}) + 0.561(\text{CASS3})$$

Candidate 93

$$\text{TASS} = -20.3 + (40)(0.080) + (45)(0.339) + (42)(0.561)$$

Predicted score = 21.717

R - sq = 77.2%

Regression squares at 77.2% show that 77.2% of the variations in the TASS score was due to CASS scores and so predictability of TASS from CASS scores is quite high in this school.

8. SCHOOL 008

Table 4.8 **CORRELATION OF CASS & TASS FOR ENGLISH IN SCHOOL 008**

	ENG.CASS 1	ENG.CASS 2	ENG. CASS 3
ENG. CASS 2	0.661*		
ENG. CASS 3	0.581*	0.806*	
ENG. TASS	0.845*	0.654*	0.600*

* Significant $P < 0.05$ $r_{\text{crit}} = .4973$

Correlations in this school were significant at 0.05 level of significance and very high, with correlation between TASS and CASS 1 being highest at 0.05 level of significance at 0.843.

Regression Analysis

Regression equation was

$$\text{TASS} = -3.73 + 0.522(\text{CASS1}) + 0.074(\text{CASS2}) + 0.070(\text{CASS3})$$

Candidate 13

$$\text{TASS} = -3.73 + (60)(0.522) + (50)(0.074) + (60)(0.070)$$

Predicted score = 35.49

R- sq = 73.1%

Regression squares at 73.1% show that 73.1% of the variation in the TASS score was due to CASS scores and so predictability of the TASS from CASS scores is quite high in this school.

9. SCHOOL 009

Table 4.9 **CORRELATION OF CASS & TASS FOR ENGLISH IN SCHOOL 009.**

	ENG.CASS 1	ENG.CASS 2	ENG. CASS 3
ENG. CASS 2	0.429*		
ENG. CASS 3	0.346*	0.648*	
ENG. TASS	0.111	0.101	0.167

* Significant $P < 0.05$ $r_{crit} = .2319$

All correlation with TASS were insignificant at 0.05 level of significance. Between TASS & CASS 1 was 0.111, between TASS & CASS 2 was 0.101 and between TASS & CASS 3 was 0.167.

Regression equation was

$$\text{TASS} = 19.8 + 0.365(\text{CASS1}) - 0.0195(\text{CASS2}) + 0.0920(\text{CASS3})$$

Candidate 793

$$\text{TASS} = 19.8 + (31)(0.0365) - (41)(0.0195) + (31)(0.0920)$$

Predicted score = 22.984

R - Sq = 3.2%

10. SCHOOL 010

Table 4.10 CORRELATION OF CASS & TASS FOR ENGLISH
IN SCHOOL 010

	ENG.CASS 1	ENG.CASS 2	ENG. CASS 3
ENG. CASS 2	0.588*		
ENG. CASS 3	0.694*	0.677*	
ENG. TASS	0.687*	0.613*	0.729*

* Significant P < 0.05

r_{crit} = .3246

All correlations in this school were high and significant at 0.05. Correlation between TASS and CASS 3 was highest at 0.05 level of significance at 0.729.

Regression Analysis

Regression equation was

$$\text{TASS} = 5.23 + 0.211(\text{CASS1}) + 0.0867(\text{CASS2}) + 0.228(\text{CASS3})$$

Candidate 470

$$\text{TASS} = 5.23 + (32)(0.211) + (47)(0.0867) + (49)(0.228)$$

Predicted score = 27.2289

R - Sq - 60%

At 60% Regression squares, CASS scores will predict accurately TASS scores.

11. SCHOOL 011

Table 4.11 CORRELATION OF CASS & TASS FOR ENGLISH SCHOOL 011

	ENG.CASS 1	ENG.CASS 2	ENG. CASS 3
ENG. CASS 2	0.427*		
ENG. CASS 3	0.420*	0.589*	
ENG. TASS	0.153	0.148	0.105

* Significant $P < 0.05$ $r_{crit} = .2875$

Correlations between CASS & TASS were not significant with correlation between CASS 3 and TASS being lowest at 0.105

Regression equation was

$$\text{TASS} = 19.2 + 0.076(\text{CASS1}) + 0.072(\text{CASS2}) - 0.001(\text{CASS3})$$

Candidate 639

$$\text{TASS} = 19.2 + (66)(0.076) + (58)(0.072) - (58)(0.001)$$

$$\text{Predicted score} = 28.334$$

$$R - Sq = 3.2\%$$

Regression squares at 3.2% shows that only 3.2% of the variations in TASS was due to continuous assessment scores.

12. SCHOOL 012

Table 4.12 CORRELATION OF CASS & TASS FOR ENGLISH SCHOOL 012

	ENG.CASS 1	ENG.CASS 2	ENG. CASS 3
ENG. CASS 2	0.495*		
ENG. CASS 3	0.368	0.221	
ENG. TASS	0.492*	0.342	0.131

* Significant $P < 0.05$ $r_{crit} = .4329$

Significant correlations were between CASS 1 & CASS 2 at 0.05 level of significance at 0.495, CASS 1 & TASS at 0.05 level of significance at 0.492. All other correlations in this school were not significant.

Regression Analysis

Regression equation was

$$\text{TASS} = 21.6 + 0.428(\text{CASS1}) + 0.114(\text{CASS2}) - 0.055(\text{CASS3})$$

Candidate 137

$$\text{TASS} = 21.6 + (71)(0.428) + (63)(0.114) - (65)(0.055)$$

$$\text{Predicted score} = 55.595$$

$$R - Sq = 25.9\%$$

13. SCHOOL 013

Table 4.13 CORRELATION OF CASS & TASS FOR ENGLISH
IN SCHOOL 013

	ENG.CASS 1	ENG.CASS 2	ENG. CASS 3
ENG. CASS 2	0.027		
ENG. CASS 3	0.029	0.139	
ENG. TASS	0.007	0.009	0.064

* Significant $P < 0.05$ $r_{crit} = .2875$

There was no significant correlation recorded at all in this school. The highest correlation was recorded between CASS 2 & CASS 3 at 0.139 and the lowest was between CASS 1 & TASS at -0.007. It appears that CASS scores were awarded haphazardly here.

Regression Analysis

Regression equation was

$$\text{TASS} = 25.3 - 0.009(\text{CASS1}) + 0.000(\text{CASS2}) + 0.054(\text{CASS3})$$

Candidate 66

$$\text{TASS} = 25.3 - (44)(0.009) + (39)(0.000) + (61)(0.054)$$

$$\text{Predicted score} = 28.198$$

$$R - \text{Sq} = 0.4\%$$

14 ALL SCHOOLS

Table 4.14 CORRELATION OF CASS & TASS FOR ENGLISH
IN ALL SCHOOLS

	ENG.CASS 1	ENG.CASS 2	ENG. CASS 3
ENG. CASS 2	0.592*		
ENG. CASS 3	0.547*	0.679*	
ENG. TASS	0.236*	0.187	0.206*

* Significant $P < 0.05$ $r_{\text{crit}} = .1946$

All correlations were significant except for correlation between CASS 2 & TASS which did not attain significance at 0.187. The most significant correlation at 0.05 level of Significance was between CASS 2 & 3 at 0.679.

Regression Analysis

Regression equation was

$$\text{TASS} = 17.8 + 0.122(\text{CASS1}) + 0.0125(\text{CASS2}) + 0.0711(\text{CASS3})$$

$$R - \text{Sq} = 6.4\%$$

From data analysed, schools 001, 004, 007, 008 and 010, rejected the null hypothesis that there is no significant relationship between CASS scores and terminal scores. School 003 would have qualified as one of the schools to reject the null hypothesis but for the insignificant relationship between CASS 3 and TASS.

Other schools - 002, 005, 006, 009, 011, 012 and 013 had insignificant correlations between CASS and TASS. Some schools like school 002 and 005 had negative correlation between CASS and TASS. In school 013 there was no significant correlation at all even between CASS scores. These schools therefore retain the null hypothesis.

It appears from data analysed that significant correlation between CASS and TASS automatically enhances the ability to predict TASS scores from CASS. In schools 004, 007, 008 and 010, regression squares went as high as 59%, 77.2%, 73.1% and 60% respectively.

In school 002, where correlation between CASS and TASS were negative and insignificant, regression square was 6.1%. In school 013 where there were no significant correlations at all, regression square was 0.4%.

When all schools were lumped together and analysed, almost all correlations were significant except for that between CASS 2 and TASS. Regression square was low at 6.4%, this can be as a result of the influence of those schools with no significant correlations between CASS and TASS.

Since about 70% of schools in Kaduna metropolis have retained null hypothesis one, (only five schools out of thirteen schools rejected the hypothesis) the researcher can only conclude that there is no significant relationship between CASS scores and TASS scores in English Language in senior secondary schools in Kaduna metropolis.

4.4 HYPOTHESIS 2

There is no significant relationship between CASS scores and terminal (SSCE scores) in Mathematics in Government Secondary Schools in Kaduna.

1. SCHOOL 001

Table 4.15 **CORRELATION OF CASS & TASS FOR MATHS IN SCHOOL 001**

	M.CASS 1	M. CASS 2	M. CASS 3
MATHS CASS 2	0.883*		
MATHS CASS 3	0.841*	0.851*	
MATHS TASS	0.535*	0.510*	0.521*

* Significant $P < 0.05$ $r_{crit} = .2875$

Correlations in this school were significant, at 0.05 level of significance. Correlations between the three CASS scores were particularly high at 0.883 between CASS 1 and 2, 0.841 between CASS 1 and 3, 0.851 between CASS 2 and 3. Between the terminal score and CASS scores, correlations were equally high, though lower than between the CASS scores. For TASS and CASS 1 it was 0.535, TASS and CASS 2 0.510 and TASS and CASS 3, 0.521.

4.5 RESEARCH QUESTION 2

To what extent does the CASS scores in Mathematics, predict the TASS scores in these schools?

To answer this research question the Regression analysis statistic was used.

Regression Analysis

Regression equation was

$$\text{TASS} = 11.1 + 0.228(\text{CASS1}) + 0.047(\text{CASS2}) + 0.153(\text{CASS3})$$

Candidate 415

$$\text{TASS} = 11.1 + (41)(0.228) + (50)(0.047) + (28)(0.153)$$

Predicted score = 21.388

R - Sq = 30.4%

At 30.4% regression squares, it means 30.4% of the variations in the TASS score is due to CASS score.

2. SCHOOL 002

Table 4.16 **CORRELATION OF CASS & TASS FOR MATHS IN SCHOOL 002**

	M. CASS 1	M. CASS 2	M. CASS 3
MATHS CASS 2	0.666*		
MATHS CASS 3	0.589*	0.778*	
MATHS TASS	-0.068	0.054	-0.019

* Significant $P < 0.05$ $r_{\text{crit}} = .4329$

Correlations between the three CASS scores were significant at 0.05 level of significance.

Between TASS and CASS 1, correlation was negative at -0.068, between TASS and CASS 2 was 0.054 which was insignificant at 0.05 level of significance and TASS and CASS 3 was -0.019.

Regression Analysis

Regression equation was

$$\text{TASS} = 23.4 - 0.340(\text{CASS1}) + 0.499(\text{CASS2}) - 0.240(\text{CASS3})$$

Candidate 013

$$\text{TASS} = 23.4 - (41)(0.340) + (55)(0.499) - (58)(0.240)$$

$$\text{Predicted score} = 22.985$$

$$R - Sq = 2.8\%$$

At 2.8% regression squares, regression squares in this school was rather low.

3. SCHOOL 003

Table 4.17 CORRELATION OF CASS & TASS FOR MATHS IN SCHOOL 003

	M. CASS 1	M. CASS 2	M. CASS 3
MATHS CASS 2	0.506*		
MATHS CASS 3	0.540*	0.441*	
MATHS TASS	0.499*	0.316*	0.385*

* Significant $P < 0.05$ $r_{crit} = .2875$

All correlations in this school were significant at 0.05 level of significance correlation between CASS 1 and 2 being highest at 0.540 and the correlation between CASS and TASS being lowest at 0.316. Significant relationship between TASS score and CASS scores is evident.

Regression Analysis

Regression equation was

$$\text{TASS} = -12.3 + 0.455(\text{CASS1}) + 0.078(\text{CASS2}) + 0.270(\text{CASS3})$$

Candidate 055

$$\text{TASS} = -12.3 + (40)(0.455) + (42)(0.078) + (41)(0.270)$$

Predicted score = 20.246

R - Sq = 27.0%

27.0% of the variations in TASS score is due to CASS scores.

4. SCHOOL 004

Table 4.18 CORRELATION OF CASS & TASS FOR MATHS IN SCHOOL 004

	M. CASS 1	M. CASS 2	M. CASS 3
MATHS CASS 2	0.711*		
MATHS CASS 3	0.687*	0.508*	
MATHS TASS	0.059	-0.068	0.014

* Significant P < 0.05 r_{crit} = .4227

Correlations between the CASS scores were very high in this school, the highest being 0.711 between CASS 1 and CASS 2, CASS scores, however correlated insignificantly at 0.05 level of significance with TASS at 0.059 between TASS & CASS 1, -0.068 between TASS & CASS 2 and 0.014 between TASS & CASS 3.

Regression Analysis

Regression equation was

$$\text{TASS} = 40.4 + 0.130(\text{CASS1}) - 0.117(\text{CASS2}) - 0.028(\text{CASS3})$$

Candidate 118

$$\text{TASS} = 40.4 + (37)(0.130) - (28)(0.117) - (45)(0.028)$$

Predicted score = 40.674

R - Sq = 2.9%

With regression squares at 2.9%, regression squares was rather low in this school.

5. SCHOOL 005

Table 4.19 CORRELATION OF CASS & TASS FOR MATHS IN SCHOOL 005

	M. CASS 1	M. CASS 2	M. CASS 3
MATHS CASS 2	0.431*		
MATHS CASS 3	0.369*	0.609*	
MATHS TASS	-0.282	0.058	0.228

* Significant $P < 0.05$ $r_{\text{crit}} = .3494$

All correlations between CASS scores were significant at 0.05 level of significance. However, correlations between CASS scores and TASS were not significant with -0.282 between CASS 1 & TASS, 0.058 between CASS 2 and TASS and 0.223 between CASS 3 and TASS.

Regression Analysis

Regression equation was

$$\text{TASS} = 28.4 - 0.413(\text{CASS1}) + 0.017(\text{CASS2}) + 0.318(\text{CASS3})$$

Candidate 217

$$\text{TASS} = 28.4 - (34)(0.413) + (45)(0.017) + (61)(0.318)$$

$$\text{Predicted score} = 34.521$$

$$R - Sq = 20.3\%$$

20.3% of the variations in TASS scores is due to CASS scores.

6. SCHOOL 006

Table 4.20 CORRELATION OF CASS AND TASS FOR MATHS IN SCHOOL 006

	M.CASS 1	M.CASS 2	M. CASS 3
MATHS CASS 2	0.425*		
MATHS CASS 3	0.114	0.257	
MATHS TASS	-0.291	0.006	-0.083

* Significant $P < 0.05$ $r_{crit} = .2732$

The only significant correlation at 0.05 level of significance was between CASS 1 and CASS 2 at 0.425. All other correlations were not significant.

Regression Analysis

Regression equation was

$$\text{TASS} = 31.5 - 0.402(\text{CASS1}) + 0.186(\text{CASS2}) - 0.094(\text{CASS3})$$

Candidate 94

$$\text{TASS} = 31.5 - (44)(0.402) + (50)(0.186) - (48)(0.94)$$

Predicted score = 18.6

R - Sq = = 11.3%

With Regression squares at 11.3% regression squares in this school was low.

7. SCHOOL 007

Table 4.21 **CORRELATION OF CASS & TASS FOR MATHS IN SCHOOL 007**

	M.CASS 1	M.CASS 2	M. CASS 3
MATHS CASS 2	0.515*		
MATHS CASS 3	0.628*	0.698*	
MATHS TASS	0.420	0.686*	0.633*

* Significant P < 0.05

r_{crit} = .4438

Except for correlation between TASS and CASS 1 at 0.420, all other correlations were significant at 0.05 level of significance. Correlation between CASS 2 & 3 was highest at 0.695.

Regression Analysis

Regression equation was

$$\text{TASS} = 2.11 - 0.022(\text{CASS1}) + 0.438(\text{CASS2}) + 0.293(\text{CASS3})$$

Candidate 93

$$\text{TASS} = 2.11 - (37)(0.022) + (26)(0.437) + (14)(0.293)$$

Predicted score = 16.786

R - Sq = 51.8%

In this school, regression squares went as high as 51.8%.

8. SCHOOL 008

Table 4.22 CORRELATION OF CASS & TASS FOR MATHS IN SCHOOL 008

	M.CASS 1	M.CASS 2	M. CASS 3
MATHS CASS 2	0.576*		
MATHS CASS 3	0.392	0.469	
MATHS TASS	0.294	0.446	-0.061

* Significant P < 0.05 $r_{crit} = .4973$

The only significant correlation was between CASS 1 & CASS 2 at 0.05 level of significance at 0.576, all other correlations were not significant. The lowest was between CASS 3 and TASS at - 0.061.

Regression Analysis

Regression equation was

$$\text{TASS} = 7.37 + 0.084(\text{CASS1}) + 0.327(\text{CASS2}) - 0.249(\text{CASS3})$$

Candidate 13

$$\text{TASS} = 7.37 + (35)(0.084) + (52)(0.327) - (25)(0.249)$$

Predicted score = 21.089

R - Sq = 30.2%

30.2% of the variations in TASS score is as a result of CASS score.

9. SCHOOL 009

Table 4.23 CORRELATION OF CASS AND TASS FOR MATHS IN SCHOOL 009

	M.CASS 1	M.CASS 2	M. CASS 3
MATHS CASS 2	0.511*		
MATHS CASS 3	0.419*	0.633*	
MATHS TASS	0.127	0.081	0.229

* Significant P < 0.05 r_{crit} = .2319

All correlations between TASS & CASS were insignificant at 0.05 level of significance. Between TASS and CASS 1 it was 0.127, between TASS & CASS 2 it was 0.081, and between TASS & CASS 3 it was 0.229. All other correlations were significant. The correlation between CASS 2 & 3 was highest and most significant at 0.633.

Regression Analysis

Regression equation was

$$\text{TASS} = 21.6 + 0.072(\text{CASS1}) - 0.136(\text{CASS2}) + 0.271(\text{CASS3})$$

$$\text{Predicted score} = 24.839$$

$$R - Sq = 6.4\%$$

With regression squares at 6.4% regression squares was very low in this school.

10. SCHOOL 010

Table 4.24 **CORRELATION OF CASS & TASS FOR MATHS IN SCHOOL 010**

	M.CASS 1	M.CASS 2	M. CASS 3
MATHS CASS 2	0.758*		
MATHS CASS 3	0.706*	0.755*	
MATHS TASS	0.614*	0.731*	0.625*

* Significant $P < 0.05$ $r_{crit} = .3246$

All correlation were significant at 0.05 level of significance with correlation between CASS 1 & 2 being highest at 0.758 and the lowest correlation being between TASS and CASS 1 at 0.614.

Regression Analysis

Regression equation was

$$\text{TASS} = 0.04 + 0.062(\text{CASS1}) + 0.288(\text{CASS2}) + 0.087(\text{CASS3})$$

Candidate 470

$$\text{TASS} = 0.04 + (32)(0.062) + (47)(0.288) + (0.087)$$

Predicted score = 19.823

R - Sq = 55.1%

Regression squares in this school went as high as 55.1%

11. SCHOOL 011

Table 4.25 CORRELATION OF CASS & TASS FOR MATHS IN SCHOOL 011

	M.CASS 1	M.CASS 2	M. CASS 3
MATHS CASS 2	0.466*		
MATHS CASS 3	0.395*	0.502*	
MATHS TASS	0.161	0.067	0.164

* Significant $P < 0.05$ $r_{crit} = .2875$

All correlations between CASS scores were significant at 0.05 level of significance but correlations between TASS and CASS scores were not significant. Between TASS and CASS 1, correlation was 0.161, between TASS and CASS 3 it was 0.164.

Regression Analysis

Regression equation was

$$\text{TASS} = 15.5 + 0.229(\text{CASS1}) - 0.118(\text{CASS2}) + 0.296(\text{CASS3})$$

Candidate 639

$$\text{TASS} = 15.5 + (36)(0.229) - (42)(0.118) + (48)(0.296)$$

$$\text{Predicted score} = 32.996$$

$$R - \text{Sq} = 4.1\%$$

At 4.1% regression squares was rather low in this school.

12. SCHOOL 012

Table 4.26 CORRELATION OF CASS & TASS FOR MATHS IN SCHOOL 012

	M.CASS 1	M.CASS 2	M. CASS 3
MATHS CASS 2	0.700*		
MATHS CASS 3	0.569*	0.512*	
MATHS TASS	0.397	0.309	0.493*

* Significant $P < 0.05$ $r_{crit} = .4329$

All correlations between CASS scores were significant at 0.05 level of significance but correlations between TASS and CASS scores were not significant except for correlation between TASS and CASS 3. Between TASS and CASS 1 was 0.397, between TASS & CASS 2 was 0.309. The highest correlation was recorded between CASS 1 and CASS 2 at 0.700.

Regression Analysis

Regression equation was

$$\text{TASS} = 10.6 + 0.237(\text{CASS1}) - 0.034(\text{CASS2}) + 0.756(\text{CASS3})$$

Candidate 137

$$\text{TASS} = 10.6 + (46)(0.237) - (42)(0.034) + (51)(0.756)$$

Predicted score = 58.63

R - Sq = 26.1%

26.1% of the variations in TASS is due to CASS scores.

13. SCHOOL 013

Table 4.27 **CORRELATIONS OF CASS & TASS FOR MATHS IN SCHOOL 013**

	M.CASS 1	M.CASS 2	M. CASS 3
MATHS CASS 2	0.346*		
MATHS CASS 3	0.355*	0.305*	
MATHS TASS	-0.019	0.062	-0.032

* Significant $P < 0.05$ $r_{crit} = .2875$

All correlations between CASS scores were significant at 0.05 level of significance but all those between TASS and CASS scores were not significant. Correlation between CASS 2 and 3 was highest at 0.355, while correlation between TASS and CASS 1 was lowest at -0.019

Regression Analysis

Regression equation was

$$\text{TASS} = 40.0 - 0.037(\text{CASS1}) + 0.093(\text{CASS2}) - 0.061(\text{CASS3})$$

Candidate 66

$$\text{TASS} = 40.0 - (51)(0.037) + (47)(0.093) - (42)(0.061)$$

$$\text{Predicted score} = 39.922$$

$$R - Sq = 0.8\%$$

At 0.8% regression squares was very low in this school.

14 ALL SCHOOLS

Table 4.28 CORRELATION OF CASS & TASS FOR MATHS IN ALL SCHOOLS

	M.CASS 1	M.CASS 2	M. CASS 3
MATHS CASS 2	0.667*		
MATHS CASS 3	0.609*	0.693*	
MATHS TASS	0.203*	0.155	0.244*

* Significant $P < 0.05$ $r_{crit} = .1946$

All correlations were significant at 0.05 level of significance, except for correlation between CASS 2 and TASS which was 0.155.

Regression Analysis

Regression equation was

$$\text{TASS} = 15.2 + 0.130(\text{CASS1}) - 0.0881(\text{CASS2}) + 0.252(\text{CASS3})$$

$$R - \text{Sq} = 6.7\%$$

When all the schools were lumped together the regression squares was very low.

From data analysed, schools 001, 003 and 010, reject the null hypothesis that there is no significant relationship between CASS scores and TASS scores in Mathematics. School 007 would have qualified to reject the null hypothesis but for the insignificant correlation between CASS 1 & TASS, in some schools like schools 002, 004, 005, 009, 011, 012 and 013, significant correlations were only recorded between CASS scores. No significant correlations were recorded between CASS and TASS in schools 006 and 008, only one significant correlation was recorded between CASS SCORES. When all the schools were lumped together there was significant correlation between CASS and TASS except for correlation between CASS 2 and TASS.

For Mathematics, regression squares were not as high as in English Language. In schools with significant correlations between CASS and TASS scores, regression squares were from 27.0% in school 003, 30.4% in school 001 and 55.1% in school 010. Hypothesis two is therefore retained that there is no significant relationship between CASS scores and TASS scores in Mathematics for senior secondary schools in Kaduna metropolis. This conclusion was arrived at in respect of the schools, in the study because about 75% of the schools in the study retained the null hypothesis.

4.6 HYPOTHESES 3 & 4 / RESEARCH QUESTIONS 3 & 4

- 4.6.1 There is no significant relationship between gender of students and predictive validity of their CASS scores for English Language in Government Secondary Schools in Kaduna metropolis.

- 4.6.2 There is no significant relationship between gender of students and predictive validity of their CASS scores for Mathematics in Government Secondary Schools in Kaduna metropolis.

For the purpose of testing these hypotheses and answering the research questions, data already analysed for hypothesis one and two were re-examined. The sample consisted of five all male schools, six all female schools and two co-educational schools. To make for easy analysis, only the all male and all female schools were used.

In English Language, one male school (001) and four female schools had significant correlation (004, 007, 008, 010) they were the five schools to reject null hypothesis one that there is no significant relationship between CASS and TASS scores in English Language. The regression squares of the four female schools were highest at 59%, 77.2% 73.1% and 60% but that of the only male school was 18.8%.

Schools like school 002, 009, and 011 (all boys schools) had no significant correlation between CASS and TASS scores. School 002 had negative correlation between CASS and TASS scores but in school 013 there was no correlation at all, even between CASS scores. Their regression squares were low at 6.1% 3.2% 3.2% and 0.4%.

For English Language therefore hypothesis three was rejected because it appears that in female schools continuous assessment contributes more to the variations in terminal assessment which means that CASS scores here show better predictive validity.

In Mathematics, fewer schools rejected null hypothesis two, that there is no significant relationship between CASS and TASS in Mathematics. Out of the three schools that rejected null hypothesis two, were two all male schools (001 and 003), while the third was a female school. The regression squares also indicated that the two male schools had 30.4% (school 001) and 27.0% (school 003) while school 010 had

55.1%. School 010 the only female school still had a higher regression square than the two male schools. Hypothesis four was rejected on the grounds that though two schools out of the three that rejected hypothesis two were boys school the only girls' school still showed higher regression squares.

4.7 SUMMARY

In this chapter, data was presented and analysed. Hypothesis one through four were either retained or rejected. Research questions one through four were also answered.

CHAPTER FIVE**SUMMARY, DISCUSSION, CONCLUSION AND RECOMMENDATIONS.****5.1 SUMMARY**

The object of this study was to determine the predictive validity of continuous assessment and its efficacy in determining terminal assessment. This led to the formulation of four null hypothesis. These were:-

- i) There is no significant relationship between CASS scores and TASS scores in English Language in Government Secondary Schools in Kaduna metropolis.
- ii) There is no significant relationship between CASS scores and TASS scores in Mathematics in Government Secondary Schools in Kaduna metropolis.
- iii) There is no significant relationship between gender of students and predictive validity of CASS scores for English Language in Government Secondary Schools in Kaduna metropolis.
- iv) There is no significant relationship between gender of students and predictive validity of CASS scores for Mathematics in Government Secondary Schools in Kaduna metropolis.

Five hundred students were selected by random sampling from thirteen schools in Kaduna metropolis. The minitab statistical package was used. Simple correlation statistic and multiple regression analysis were used to resolve the four hypotheses.

In the interpretation of analysed data, hypothesis one was rejected by schools 001, 004, 007, 008, and 010, out of thirteen schools. While school 002, 003, 005, 006, 009, 011, 012, 013 retained the null hypothesis one. When all the schools were lumped together, it was noted that only the correlation between CASS 2 and TASS was insignificant. CASS 1 and CASS 3 show significant relationship with TASS, however, this did not help regression squares which was very low at 6.4%, so the hypothesis was retained.

Hypothesis two was rejected by schools 001, 003 and 010, while schools 002, 004, 005, 006, 007, 008, 009, 011, 012 and 013 retained the null hypothesis. When the schools were lumped together correlation was significant except for correlation between CASS 2 and TASS. Regression square was low at 6.7%. The hypothesis was retained.

Hypothesis three was rejected when analysed data revealed that correlation were higher and more significant in some girls' schools. For English Language, four schools that had significant correlations between CASS and TASS were girls' schools. Hypothesis four was also rejected for Mathematics, because two out of the three schools with significant correlations were boys schools, but the only girls' school that rejected the hypothesis had higher regression squares.

5.2 DISCUSSIONS

i) HYPOTHESIS ONE

The results of analysed data show that hypothesis one was rejected by five schools and retained by eight schools. This gave the researcher 70% in favour of retaining the hypothesis that there is no significant relationship between CASS scores in English Language and TASS scores

The regression analysis went further to indicate whether CASS scores can predict TASS scores accurately. It was found that there was a significant relationship between correlation of CASS and TASS scores and the ability of CASS scores to predict TASS scores. The five schools that show significant relationship between CASS and TASS also show high percentages in regression squares. It is important to restate here that the higher the regression squares the better the predictability of TASS from CASS.

Correlations for English Language between CASS and TASS scores were better than for mathematics probably because more often than not, there is no one answer to a question in English Language. Except for Objective Multiple Choice Questions, students can give varied answers to a particular question and still be right. This may have influenced the award of marks of teachers and examiners and subsequently the predictability of CASS scores.

The correlation findings here are in line with the findings of Adeyegbe (1992). He had done correlations of six subjects in ten schools. In English Language, correlations between CASS and TASS were generally low and only three out of the ten schools had significant relationship between CASS and TASS at 0.05 level of significance. Turton (1988), rejected the null hypothesis at 0.01 level of significance when he correlated continuous assessment and achievement test in a Junior secondary school. A detailed study of Turton's work indicate the probability that this result was biased. He used only one private school attached to the Ahmadu Bello University. This school has special privileges of well qualified teachers and enlightened parents, who are lecturers in the University. This may have contributed to the reasons why correlations were so significant and the hypothesis rejected.

ii) **HYPOTHESIS TWO**

Correlations for Mathematics between CASS and TASS scores were rather low in Mathematics and not as good as English Language. This is probably because Mathematics is a more direct subject, whereby there can hardly be two answers to a question. It is not flexible as English Language. While five schools rejected hypothesis one and had high regression squares, only three schools rejected hypothesis two with not so high regression squares.

In Mathematics, Adeyegbe's study showed significant relationship between CASS and TASS in all the ten schools studied. This is unlike the present finding, where only three out of thirteen schools showed significant relationship. Turton, also had significant relationship between continuous assessment scores and achievement tests for Mathematics. While Turton's result could be explained as hypothesis one, Adeyegbe's result on the other hand leaves a lot of speculations and questions to be answered. Are Mathematics teachers better in Adeyegbe's area of study than Kaduna metropolis?; Are their test items more indicative of what is expected in Senior Secondary School Certificate Examinations? These questions can only be answered with further research. The researcher's opinion, however is that the test items were probably more indicative of what is expected in the Senior School Certificate Examinations.

iii) **HYPOTHESIS THREE AND FOUR**

These hypotheses were rejected because analysis show that in four girls' schools, English Language CASS scores correlated significantly with TASS scores. Regression squares went as high as 77.2%, bringing the researcher to the conclusion that in these four girls' schools, CASS scores may predict TASS scores accurately. For Mathematics two out of the three schools that rejected hypothesis two were boys' schools.

It was interesting to note that correlations between CASS and TASS scores in English Language were better in girls schools than in boys' schools. And in Mathematics the only girls' school that rejected hypothesis two had higher regression squares than the other two boys' schools. This may be because Principals of Girls' schools, usually women, take their jobs more seriously and make sure their teachers and students do their work too.

Turton's study also went into the influence of gender and also rejected the hypothesis that there is no significant relationship between gender of students and correlations of continuous assessment scores and achievement test scores. This confirms the researcher's own findings.

An overall picture of data analysed, showed that most schools were awarding continuous assessment marks haphazardly. In most cases, there were no significant correlation at all among CASS and TASS scores. It may be that because of the number of students each teacher has to handle, the teachers do not bother to conduct tests or when they do, they give simple enough questions they can mark or even give someone else to mark easily. One of the first complaints received in the various workshops conducted by WAEC was that most schools did not have the staff strength to conduct continuous assessment in details and as often as is required. Other reasons may abound, but suffices it to say that an in depth study has to be carried out in this area.

5.3 CONCLUSION

The analysis and interpretation of the data collected during the study led to the following conclusions:

Considering that only five schools out of the thirteen schools rejected hypothesis one and three schools rejected hypothesis two, the researcher is convinced that there is a lot that needs to be done about tests and testing in schools. Are teachers following the syllabus? Are they assessing the students correctly? Are students taking continuous assessment seriously? Looking at the raw CASS scores, the researcher observed that in most of the schools that retained hypothesis one and two, the raw CASS scores were higher than TASS scores. It appears as if most of these schools were overrating their students. Surprisingly however, it was discovered that school 012 was guilty of underrating its students. Here, most CASS scores were much lower than TASS scores.

Correlations of CASS and TASS scores in English Language were much better than in Mathematics and regression squares were also higher in English than Mathematics. English Language CASS therefore has a better predictive validity than Mathematics CASS in Government Secondary Schools in Kaduna. More schools rejected hypothesis one than hypothesis two. Whereas five schools out of the thirteen schools rejected hypothesis one, with regression squares going as high as 77.2%. Only three schools out of the thirteen schools rejected hypothesis two and the highest regression square was 55.1%.

At this stage of educational development in Kaduna, continuous assessment cannot be used in place of terminal examination for grading and award of certificates. From the look of correlations in schools 013 for example, there is no significant correlations with TASS at all. It seems as if this school awarded continuous assessment marks without actually assessing the students.

5.5 LIMITATIONS OF THE STUDY

Not all the Government Secondary Schools in Kaduna metropolis were used in the study. This was because some schools, though called government schools have other bodies apart from state and Federal Ministries of Education that takes care of them. For example, Capital School is directly under a board and the Airforce and Command Secondary Schools are directly under the Armed Forces of Nigeria. Also, since the continuous assessment tests are not standardized one can never be sure of the reliability and validity of the test scores. Finally, for hypothesis three and four the two co-educational schools were not considered.

5.6 RECOMMENDATIONS

Fortunately for the West African Examinations Council, statistical moderation has made it possible for continuous assessments scores collected from schools to be relatively standardized before incorporation into terminal scores. This is perhaps enough to allay fears of Educationists on the lowering of the standard of Certification. However, there is still a lot that the Federal and State Ministries of Education, Schools, teachers and even students themselves can do to improve the validity, reliability and predictive validity of continuous assessment scores. In this respect the following are important:-

1. Kaduna State Ministry of Education should look into the possibility of making continuous assessment test items and marking schemes to be uniform across the State.
2. Kaduna State Ministry of Education should take up non-statistical moderation by visiting schools regularly. Subject officers from the Ministry should inspect regularly the work done by teachers and students.

3. Regular workshops should be organized by State Ministries of Education to refresh the memories of teachers on how continuous assessments tests should be conducted. The evident lack of correlation and difficulty of predictability of scores could probably be due to lack of use of standardized marking scheme for scoring tests and exams. The importance of a uniform marking scheme would go a long way in eschewing bias during award of scores by teachers. Teachers should also be encouraged to air their problems at the workshops so that permanent solutions can be found.
4. Principals of schools should take on direct monitoring of continuous assessments in their schools. They should, through heads of departments ensure that accurate records of continuous assessments are kept on each student in the school.
5. Students on their part should take continuous assessment more seriously. School authorities should tell them regularly the importance of continuous assessments and the advantages of doing their work consistently.

5.7 RECOMMENDATIONS FOR FURTHER STUDY

Studies should be carried out on other schools' academic subjects. Also a study should be carried out to assess the possibility of making continuous assessment test items and marking scheme uniform across the country.

Researches should be carried out to find out why English Language show better predictive validity and why gender affects the predictive validity of TASS scores from CASS scores.

Finally, the present study is based on a metropolis, a more comprehensive study to cover a wider geographical region or the country at large should be encouraged.

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SCHOOL SERIAL NO.	CORRELATIONS BETWEEN CASS & TASS ENGLISH	REGRESSION SQUARES FOR ENGLISH	CORRELATIONS BETWEEN CASS & TASS MATHEMATICS	REGRESSION SQUARES FOR MATHS	GENDER
001	SIGNIFICANT	18.8%	SIGNIFICANT	30.4%	MALE
002	INSIGNIFICANT	6.1%	INSIGNIFICANT	2.8%	MALE
003	INSIGNIFICANT BETWEEN CASS 3 & TASS	11.2%	SIGNIFICANT	27.0%	MALE
004	SIGNIFICANT	59.0%	INSIGNIFICANT BETWEEN CASS 2 3 & TASS	2.9%	FEMALE
005	INSIGNIFICANT	3.7%	INSIGNIFICANT	20.3%	CO-ED
006	INSIGNIFICANT	6.1%	INSIGNIFICANT	11.3%	FEMALE
007	SIGNIFICANT	77.2%	INSIGNIFICANT BETWEEN CASS 1 & TASS	51.8%	FEMALE
008	SIGNIFICANT	73.1%	INSIGNIFICANT	30.2%	FEMALE
009	INSIGNIFICANT	3.2%	INSIGNIFICANT	6.4%	MALE
010	SIGNIFICANT	60%	SIGNIFICANT	55.1%	FEMALE
011	INSIGNIFICANT	3.2%	INSIGNIFICANT BETWEEN CASS 1 3 & TASS	4.1%	MALE
012	INSIGNIFICANT BETWEEN CASS 2, 3 & TASS	25.9%	INSIGNIFICANT BETWEEN CASS 1, 2 & TASS	26.1%	CO-ED
013	INSIGNIFICANT	0.4%	INSIGNIFICANT	0.8%	FEMALE
014 (ALL SCHLS.)	INSIGNIFICANT BETWEEN CASS 2 & TASS	6.4%	INSIGNIFICANT BETWEEN CASS 2 & TASS	6.7%	ALL MALE, ALL FEMALE AND CO- CO-ED. SCHOOLS