



Influence of School Type and Location on Primary School Pupils' Continuous Assessment Scores and Cognitive Placement Test Scores in Delta State

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ABSTRACT

Continuous assessment (CA) plays a crucial role across all levels of education. According to the National Policy on Education (2014), CA is summative, formative, cumulative, and guidance-oriented. This study was motivated by concerns about variations in the quality of tests and inconsistencies in scoring and grading procedures among schools. The findings aim to assist policymakers in leveraging the strengths of CA and contributing to existing literature on the subject. The study examined the influence of school type and location on primary school pupils' continuous assessment and cognitive placement test scores in Delta State. Guided by four research questions and hypotheses, the study sampled 459 primary school pupils from 27 Delta North Senatorial District schools, selected from a population of 22,950. Using data from the 2019/2020 academic year, the study employed a descriptive survey design and analyzed continuous assessment and cognitive exam scores. Statistical tools such as Pearson's Product Moment Correlation, mean/standard deviation analysis, and correlation analysis were used to address the research questions and test the hypotheses. The findings revealed that CA scores provided by teachers are valid predictors of pupils' performance on cognitive placement tests. Furthermore, the predictive validity of CA scores was independent of school type and location. The study recommends that continuous assessment be prioritized and that the government regularly organize workshops, seminars, and in-service training programs to enhance the effectiveness of CA and cognitive placement tests in primary schools.

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INTRODUCTION

Primary education serves as the foundation for higher learning in secondary and tertiary institutions, acting both as an investment and a catalyst for economic, social, political, technological, scientific, and cultural advancement. Continuous Assessment (CA) is widely recognized as a comprehensive method for evaluating pupils' performance across cognitive, affective, and psychomotor domains of learning. It is systematically conducted, accumulating data to facilitate informed decisions that shape learners' academic and future endeavours.

According to Egbule (2009), while the problem hindering the successful implementation of continuous assessment cuts across all subjects not in the school's curriculum, specific problems affecting individuals in the area of cognitive placement scores also exist. The grading in assessing students' performance in the area of cognitive placement scores, calls for attention. The lack of uniform format for assessment can only compound the issue of comparability of scores between continuous assessment and cognitive test scores of schools.

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CA, according to O'kwu and Orum (2012), is an orderly and extensive process aimed at identifying students' potential across cognitive, affective, and psychomotor domains, with the objective of enhancing their social and economic adaptability within modern society. Three areas of assessment in schools were clearly identified by this definition. Cognitive, affective, and psychomotor. The issue here is how the cognitive examination relates to the child's CA at the primary school level. Egbule (2009), suggested that cognitive assessment should embrace the six "cognitive domains of knowledge, comprehension, application, analysis, synthesis, and assessment". The affective domain is slanted towards usage. This definition highlights three assessment areas: cognitive, affective, and psychomotor. The alignment between cognitive examinations and CA at the primary level is crucial, encompassing these three domains.

Cognitive tests evaluate complex problem-solving abilities influenced by various cognitive processes such as abstract reasoning, concept formation, multitasking, pattern recognition, language comprehension, and object naming (O'kwu and Orum, 2012). Poorly structured cognitive ability tests can result in low pupils' achievement.

Differences between urban and rural schools are significant, with urban schools characterized by dense populations, well-equipped facilities, industrialization, and high-rise buildings, while rural schools feature natural landscapes, agriculture, and low population densities (Wood, 2023). Public primary schools are government-owned, whereas private primary schools are privately owned entities.

Concept of Continuous Assessment

In education, the terms "assessment" and "evaluation" are frequently deployed interchangeably. According to Duncan and Dunn (2008), "assessment" is a strategy for acquiring information regarding pupils' learning accomplishment, the teacher's teaching activities, and pupils individually via self-assessment of their learning. It likewise embraces information gathering strategies. On the other hand, "evaluation" refers to forming judgments or

forecasts based on information gathered throughout the assessment process about pupils' attitudes and achievements. Assessment can likewise function as predictors of future achievements. Egbule and Nwangwa (2023) opined that performance is necessary in what should be expected of students in general.

Continuous assessment is defined by Denga (2003) as "a technique for deciding the concluding rating for a given period via a series of assessments consisting of non-test and test measure". FME (Federal Ministry of Education (2014) defines CA as a mechanism that systematically considers students' performance across cognitive, affective, and psychomotor domains over a given period, utilizing various evaluation methods to guide and enhance student learning and performance.

Assessment, according to Nwangwa, Igabari, and Osadebe (2022), is centered on analyzing data from examinations, interviews, questionnaires, and observation, among other sources, and integrating this data to provide a precise assessment of pupils. According to (FGN, 2013), the three domains proposed by Bloom (1956) and others were deployed to assess pupils in a learning setting.

There are three main domains: cognitive, affective, and psychomotor. While bearing in mind the various skills in humans, Denga (2003) believes that cognitive domain is as useful as psychomotor domain, as they focus on skills that students can utilize to recognize and manipulate objects, perform tasks, or respond to various situations. The cognitive aspect of the domain is further separated into six areas, which include, application, analysis, hypotheses, knowledge, assessment and comprehension. Values, beliefs, attitudes, interests, social relationships, emotional adjustment, habits, and lifestyles pertain to affective domain. Finally, the psychomotor domain involves manipulating abilities and physical motions, such as writing, drawing, typing, playing music, swimming, and driving.

Cognitive Assessment System

Cognitive assessment, as outlined by Naglieri and Das (2007), is an individual test

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designed for children aged 5 to 17, aiming to measure four key psychological processes. It is structured according to past theory and consists of four scales: Planning, Attention, Concurrent, and Succeeding, each with a mean of 100 and a standard deviation of 15. In this investigation, the eight-subset Basic Battery was deployed. Cognitive assessment was developed using a sample of 2200 children aged 5 to 17 years old chosen to mirror the demographics of the United States. Full Scale (.87), Planning (.85), Attention (.84), Concurrent (.90), and Successive (.90) are the average basic battery reliability coefficients.

Cognitive assessment planning scale challenges pupils to think about solution to each problem, create a plan of action, implement the plan, alter the strategy as needed, and restrain the urge to act without due consideration. Planning subsets necessitate the application of techniques for effective accomplishment (Naglieri & Das, 2007). Cognitive assessment attention scale demands the child to concentrate cognitive effort, notice exact stimuli, and suppress responses to opposing stimuli into a connected set of spatial and logical content. The Successive Scale requires the child to integrate content into a certain serial order in which each element is related to those that come before and after it, as well as to repeat or comprehend the serial structure of occurrences. The Cognitive assessment complete grade score is a total assessment of cognitive processes that is a combined composite of all subtests from the Planning, Attention, Concurrent, and Repetitive scales.

A cognitive ability exam, according to Egbule (2009), is intended to assess either overall intelligence or mental aptitude in an exact subject. Individual tests are given out, generally on paper and pencil. Human resources personnel use them for employment, and school systems utilize them to quantify the intellectual potential of their children. A computer is usually deployed to score the tests, and the mainstream of them are regarded reliable. Cognitive ability or intelligence tests can assess verbal, mathematical, spatial, mechanical, or clerical ability, as well as learned reasoning abilities. They can likewise assess short-term or long-term memory, visual or manual

speed, and symbolic reasoning (the ability to think abstractly).

Bichi and Musa (2015) discovered a substantial association between Continuous assessment scores (CAS) and scores in examination of university undergraduate students in their study. Similarly, Aina and Adedo (2013) discovered positive correlation between CA and physics performance of students' in Kwara State University and concluded that CA helped to improve their performances. Their research further suggested that the compilation of physics students' grades should not include only examination scores, but should embrace both examination and CAS. The problem of this study therefore, is the differences arising from the quality of tests and the procedures for scoring and grading in various schools. The purpose of this study, is how well do Continuous assessment (CA) scores given by teachers correlate with Cognitive placement test scores (CTS) from the Ministry of Education for the same pupils.

Research Questions

From the problem and purpose stated, the following were addressed in the study.

1. What is the relationship between continuous assessment scores and cognitive test scores of public primary school pupils?
2. What is the relationship between continuous assessment scores and cognitive test scores of private primary school pupils?
3. What is the relationship between continuous assessment scores and cognitive test scores of urban primary school pupils?
4. What is the relationship between continuous assessment scores and cognitive test scores of rural primary school pupils?

Hypotheses

1. There is no significant relationship between continuous assessment scores and cognitive test scores of public primary school pupils.
2. There is no significant relationship between continuous assessment scores and cognitive test scores of private school pupils.
3. There is no significant relationship between continuous assessment scores and cognitive test scores of urban primary school pupils.

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4. There is no significant relationship between continuous assessment scores and cognitive test scores of rural primary school pupils.

METHOD

Descriptive survey design (ex-post facto) was deployed in this study. The choice was made since it is studying and forecasting events that took place relative to the present, and all of the variables studied had already occurred. The researcher had no manipulative influence on the data used. The population comprised of all 22,950 primary six pupils who sat for the 2020 basic examination in Delta North Senatorial District, from 27 primary schools. A total of four hundred and fifty-nine (459) pupils were used in the study comprising pupils from public and private schools and also urban and rural school setting which is about 2% of the population. Kerlinger's Rule of thumb was used to determine the sample size, which says that 2% sample size is appropriate for a population ranges FOM 10,000 to 100,000. The choice of 459 was made by systematically removing the schools that registered less than 17 pupils for the examination. Thereafter, the schools were divided into strata of urban and rural areas, public and private schools before random balloting system was done to select the participating pupils from the stratified schools of which three schools (2 public and 1 private) was selected from each of the nine local governments in the district making it a total of 27 participating schools. The two instruments used in the study were CAS and the cognitive test scores CTS which are standardized test scores by teachers and the examinations and

standards unit of the state ministry of basic and secondary education.

In analysing the data, a prior analysis and grading system was done on the continuous assessment test scores so as to help work out the average of the overall performance in the four subjects done in the cognitive placement test.

Using descriptive statistics, the average CA scores was worked out. Thereafter, the average continuous assessment scores was graded on a standard scale used for cognitive placement evaluation.

Scores	Decision	Points
70-100	Excellent	4
50-69	Merit	3
40-49	Pass	2
Below 40	Fair	1

The cognitive placement exams are graded on an Excellent, Merit, Pass, and Fail scale, the purpose of this grading was to assist bring the total rating of the ongoing assessment test scores and the cognitive test scores to the same level. After bringing both test scores to the same level, Pearson Product Moment Correlation analysis was conducted. The statistical software package utilized for the study was SPSS 21.

RESULTS AND DISCUSSION

Research Question One: What is the relationship between CAS and CTS of public primary school pupils?

Table 1: Analysis of the Relationship between CAS and CTS of public primary school pupils

Variables	N	R	P
Cont. Assessment scores Cognitive plac. Scores	459	0.64	0.00*

*Significance: $P < 0.05$

Table 1 reveals that there is a strong positive link between CAS and CTS of public primary school pupils ($r = 0.64$ at $P 0.05$ significance level). This positive link implies that

as pupils' CAS rise, so will their cognitive exam-scores.

Research Question Two: What is the relationship between CAS and CTS of private primary school pupils?

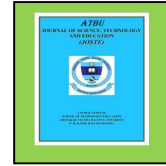


Table 2: Analysis of the Relationship between CAS and CTS of private primary school pupils

Variables	N	R	P
Cont. Assessment scores	459	0.61	0.00*
Cognitive place. Scores			

*Significance: $P < 0.05$

Table 2 reveals a strong relationship between CAS and CTS of private primary school pupils ($r = 0.61$, $P = 0.05$). This positive link shows that as pupils' CAS rise, so will their cognitive exam-scores.

Research Question Three: What is the relationship between CAS and CTS of urban primary school pupils?

Table 3: Analysis of the Relationship between CAS and CTS of urban primary school pupils

Variables	N	R	r^2	$r^2\%$
Cont. Assessment scores	459	0.66	0.414	4.140
Cognitive plac. Scores				

*Significance: $P < 0.05$

Table 3 reveals a strong relationship between CAS and CTS of urban primary school pupils ($r = 0.66$, $P = 0.05$). This positive link shows that as pupils' continuous-assessment scores rise

in metropolitan settings, so will their cognitive test scores.

Research Question Four: What is the relationship between CAS and CTS of rural primary school pupils?

Table 4: Analysis of the Relationship between CAS and CTS of rural primary school pupils

Variables	N	R	P
Cont. Assessment scores	459	0.63	0.00*
Cognitive place. Scores			

*Significance: $P < 0.05$

Table 4 reveals a strong relationship between CAS and CTS of rural primary school pupils ($r = 0.63$, $P = 0.05$). This positive link shows that as pupils' continuous-assessment scores rise in rural areas, so will their cognitive exam results.

Hypotheses One: There is no significant relationship between CAS and CTS of public primary school pupils

Summary report of Pearson Correlations for hypothesis 1

		CAS	CTS
CAS	Pearson Correlation	1	.988**
	Sig.		.000
	N	307	307
CTS	Pearson Correlation	.988**	1
	Sig.	.000	
	N	307	307

** . Correlation is significant at the 0.05 level

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The Pearson correlation analysis reveals a remarkably strong positive relationship between the CAS and Cognitive Test Scores (CTS) of public primary school pupils, with a coefficient of 0.988** ($p < 0.05$). This indicates that as CAS increases, there is a tendency for CTS to also increase, and conversely, as CAS decreases, CTS tends to decrease. The high correlation coefficient suggests that CAS and CTS are closely related, implying that students who perform well in continuous assessments also tend to perform well in cognitive tests. This finding underscores the importance of CA as a reliable predictor of cognitive performance among primary school pupils.

The significance of this correlation at the 0.05 level, further strengthens the evidence for the

relationship between CAS and CTS. This suggests that the observed correlation is unlikely to have occurred by chance. These results provide valuable insights for educators and policymakers, indicating that efforts to improve students' performance in continuous assessments may also lead to improvements in their cognitive test performance. This highlights the potential benefits of implementing targeted interventions and strategies to enhance students' learning and academic achievement in public primary schools.

Hypotheses Two: There is no significant relationship between CAS and CTS of private primary school pupils

Summary report of Pearson Correlations for hypothesis 2

		CAS	CTS
CAS	Pearson Correlation	1	.993**
	Sig.		.000
	N	153	153
CTS	Pearson Correlation	.993**	1
	Sig.	.000	
	N	153	153

** . Correlation is significant at the 0.05 level.

The Pearson correlation analysis indicates a highly significant positive relationship between the CAS and Cognitive Test Scores (CTS) of private primary school pupils, with a coefficient of 0.993 ($p < 0.05$). This strong positive correlation suggests that as CAS increases, there is a tendency for CTS to also increase, and vice versa. The high correlation coefficient implies that students who perform well in continuous assessments are likely to perform well in cognitive tests. This finding highlights the importance of CA as a predictor of cognitive performance among private primary school pupils.

Despite the strong correlation, it's important to note that the null hypothesis, stating that there is no significant relationship between CAS and CTS of private primary school pupils, is

rejected due to the highly significant correlation coefficient. This implies that the observed relationship between CAS and CTS is unlikely to have occurred by chance. These results provide valuable insights for educators and policymakers in private primary schools, suggesting that efforts to improve students' performance in continuous assessments may lead to improvements in their cognitive test performance. This underscores the importance of tailored interventions and strategies to enhance students' learning and academic achievement in private primary schools.

Hypotheses Three: There is no significant relationship between CAS and CTS of urban primary school pupils



Summary report of Pearson Correlations for Hypothesis 3

	CAS	CTS
CAS	Pearson Correlation	1
	Sig.	.989**
	N	273
CTS	Pearson Correlation	.989**
	Sig.	.000
	N	273

** . Correlation is significant at the 0.05 level.

The Pearson correlation analysis reveals a highly significant positive relationship between CAS and Cognitive Test Scores (CTS) of urban primary school pupils, with a correlation coefficient of 0.989 ($p < 0.05$). This strong positive correlation suggests that as CAS increases, there is a tendency for CTS to also increase, and vice versa. The high correlation coefficient indicates that students who perform well in continuous assessments are likely to perform well in cognitive tests. This finding underscores the importance of CA as a predictor of cognitive accomplishment, among urban primary school pupils.

Despite the strong correlation, it's important to note that the null hypothesis, stating that there is no significant relationship between CAS and CTS of urban primary school pupils, is

rejected due to the highly significant correlation coefficient. This implies that the observed relationship between CAS and CTS is unlikely to have occurred by chance. These results provide valuable insights for educators and policymakers in urban primary schools, suggesting that efforts to improve students' performance in continuous assessments may lead to improvements in their cognitive test performance. This highlights the importance of tailored interventions and strategies to enhance students' learning and academic achievement in urban primary schools.

Hypotheses Four: There is no significant relationship between CAS and CTS of rural primary school pupils

Summary report of Pearson Correlations for Hypothesis 4

	CAS	CTS
CAS	Pearson Correlation	1
	Sig.	.969**
	N	187
CTS	Pearson Correlation	.969**
	Sig.	.000
	N	187

** . Correlation is significant at the 0.05 level

The Pearson correlation analysis indicates a highly significant positive relationship between CAS and Cognitive Test Scores (CTS) of rural primary school pupils, with a correlation coefficient of 0.969 ($p < 0.05$). This strong positive correlation suggests that as CAS increases, there is a tendency for CTS to also increase, and vice versa. The high correlation coefficient implies that students who perform well in continuous

assessments are likely to perform well in cognitive tests. This finding underscores the importance of CA as a predictor of cognitive test results, among rural primary school pupils.

However, it's important to note that while the correlation is statistically significant, the observed relationship between CAS and CTS does not necessarily indicate a causal relationship. Other factors, such as

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socioeconomic status, teacher quality, and access to resources, could also influence students' performance in both continuous assessments and cognitive tests. Nonetheless, these results provide valuable insights for educators and policymakers in rural primary schools, suggesting that efforts to improve students' performance in continuous assessments may lead to improvements in their cognitive test performance.

DISCUSSION

The findings from research question one and the corresponding hypothesis show that there was a significant relationship between continuous assessment scores and cognitive test scores of public primary school pupils. This positive relationship suggests that as continuous assessment scores for pupils increase, cognitive test scores of public primary school pupils also increase. The result agrees with the findings of Aina and Adedo, (2013) who found positive correlations between CAS and the performance of physics students in Kwara state university and resolved that continuous assessment influenced students' performance in physics.

The findings from research question two and hypothesis two showed that there was a statistically significant relationship between CA scores and cognitive test scores of private primary school pupils. This positive relationship suggests that as CA scores for pupils' increase, cognitive test scores of private primary school pupils also increase. The findings, agree with Balogun et al (2001), who opined that continuous assessment in our educational system, should be integrated with the school programme and not only taken as a tool for information, but should be used for decision making, for the interest of the learners and society.

Results from research question three and hypothesis three show that there is a strong positive relationship between continuous assessment scores and cognitive test scores of urban primary school pupils. The result therefore implies that as continuous assessment scores for pupils in urban areas increases, cognitive test scores also increases for urban primary school pupils. Relative to this finding, Bichi and Musa, (2015) conducted a similar study on the

correlation between Continuous assessment scores and the performance of physics students; their study revealed that there was a significant relationship between continuous assessment scores and examination scores of undergraduate students in the university.

Findings in research question four and its corresponding hypothesis four, show significant relationship between continuous assessment scores and cognitive test scores of rural primary school pupils. This positive relationship suggests that as continuous assessment scores for pupils in rural areas increase, cognitive test scores also increase for rural primary school pupils. Similar finding was revealed in the work of Brown & Thomas (2003) who stated that the purpose of education is to give chance to those learners who aspire for it, for the benefit of the society. They explained that the idea of eliminating students through one-shot examination does not serve the interest of the students, the school and society. This is because the aim of education is defeated if it does not serve the interest of the students, the school and the society. To this regard, teachers should always relate continuous assessment scores of pupils to their cognitive test scores irrespective of location or school type.

CONCLUSION

The study concluded that:

- i. Positive relationship exists between CA scores and cognitive test scores of public and private primary school pupils.
- ii. Positive relationship exists between CA scores and cognitive test scores of urban and rural primary school pupils.
- iii. Pupils' results in cognitive placement exam, reflect their performance in continuous assessment.
- iv. Primary school pupils' performance in cognitive placement exam is not dependent on the location or school type.

RECOMMENDATIONS

Based on the findings and conclusions, the following recommendations were made:

1. Primary school teachers in urban, rural, public and private schools should put in more



- effort to ensure that pupils' continuous assessment is taken seriously since it determines their final scores in the cognitive placement test.
2. Government should organise workshops, seminars and in-service training courses at regular intervals to help reappraise, update and to improve appropriately-the effectiveness of continuous assessment and cognitive tests in primary schools.
 3. Primary school pupils should take continuous assessment seriously by doing assignments and obeying teachers' instructions so as to do better in the final examinations.
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