

Review

Effect of Continuous Assessment Scores on the Final Examination Scores obtained by Students at the Junior Secondary School (JSS) Level in Mathematics

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Abstract

The basic aim of this study is to find out whether continuous assessment scores have any effect on the final examination scores obtained by students in mathematics at the Junior Secondary School (JSS) level. Continuous assessment scores were correlated with the final examination scores for a period of five years. The coefficient of determination was also calculated and it was found that all the coefficients were significant at 0.05 level of significance. This showed that there exists an effect of continuous assessment on the final examination scores at the Junior Secondary School level. The study therefore recommends that continuous assessment of students be given a more serious attention by teachers.

Keywords: Continuous Assessment, Junior Secondary School, Coefficient, Correlation.

INTRODUCTION

At any particular stage of students' education, information may be required about their academic standing or readiness for employment. Such information may be needed for further studies. Information regarding students' academic standing is usually got from the assessment of students' academic performance in various subjects as reflected in their examination results. The assessment of students at the Junior Secondary School level is conducted at state level by various states and by National Examination Council (NECO) for Federal Government Colleges and interested private secondary schools.

Continuous assessment as a system of evaluating students' performance has been in existence in all states in Nigeria since the inception of 6-3-3-4 system of education in 1982. This study is interested in the study of the relationship between continuous assessment scores and final assessment scores of junior secondary school students. The study attempts to explore the extent to which internal assessment correlates with the external

assessment in junior secondary schools in mathematics as recommended by Jahun (1984). For such a study, Owoyemi (2000) suggested the use of students' grades in a course or groups of courses.

Before the implementation of the 6-3-3-4 system of education, there were two types of assessments in the secondary school system; the internal and the external assessments. Schools conducted the internal assessments to determine the progress of learning and the academic strengths of students. These assessments were conducted during, and at the end of each term. Annual examinations were conducted at the end of each year, which were used for promotions and other purposes. The external examinations were conducted at the national level to mark the completion of the course by the students. These external examinations were the ones considered for certification of students at the post primary school level.

In 1982, Federal Government of Nigeria introduced a method of assessment in which internal and external assessments are combined for the certification of students. This method of assessment is known as the continuous assessment. This system has the characteristics of combining assessment scores obtained as a result of internal assessment scores and external

Table 1. Schools and students selected for the study

		JS3 Graduates selected (2000)	JS3 graduates selected (2001)	JS3 graduates selected (2002)	JS3 graduates selected (2003)	JS3 graduates selected (2004)
1.	Government Model School, Katsina-Ala	102	120	132	158	159
2.	Mbagbera Community Secondary School, V/Kya	60	60	61	110	110
3.	NKST W. Bristow Secondary Sch., Gboko	132	160	172	140	142
4.	Government College, Makurdi	45	48	49	86	88
5.	ECWA Secondary School, Makurdi	52	53	54	100	102
6.	Government Girls Secondary Sch., Makurdi	102	103	113	82	83
7.	Community Secondary School, Makurdi	83	100	118	70	70
8.	Government Day Secondary Sch., Otukpo	81	86	91	79	78
9.	Government Secondary Sch., Okpoga	91	106	118	121	120
10.	Holy Rosary College, Adoka	52	69	71	58	58
	Total	800	905	979	1004	1010

Source: Benue State Examinations Board that conducts Junior Secondary Schools Examinations.

assessment to determine the overall performance of each student.

Problem of the Study

Interest for this research work came as a result of poor performance of students in mathematics at their Junior Secondary School stage. It has been observed that earlier research studies concentrated on the attitudes of students towards mathematics. The West African Examination Council (WAEC) chief examiner's report on mathematics in 1982 asserted that one of the factors that could be responsible for the downward trend in candidate's performance is their attitude to the subject. Husen (1969) showed that, students who study mathematics at a higher level tend to perceive the subject as difficult and demanding. A student who has initial favourable attitude to mathematics tends to improve his understanding of the subject through perseverance in the solution of problems. Though, Chief Examiners' report of WAEC (1982) and Husen (1969) were talking about attitude, the researchers in this study went to find out whether continuous assessment scores can have any effect on the final examination scores of the junior secondary school results of students.

METHODOLOGY

The design employed for this study is the correlational design, where the variables were correlated to establish the research measures. This design is suitable for this study because the study is aimed at exploring the relationship between the variables which are the

continuous assessment scores and the final grades obtained by students at the junior secondary school level.

Five groups of graduates of junior secondary schools were used to explore all the research measures for the 2000, 2001, 2002, 2003 and 2004 samples respectively. These graduates were used previously for continuous assessment and final examinations at the Junior Secondary School (JSS) levels in Benue State.

The subjects sampled for the study were 4,698 junior secondary school students from ten selected secondary schools in Benue State from 2000 to 2004. A random sampling technique was also employed to select the subjects for the study. To employ this random sampling technique, the researchers used hat and draw method to select the schools and the subjects in each school. Using this technique, ten schools out of 304, were selected from the three education zones in Benue State. Table 1 shows the schools and students that were selected.

RESEARCH QUESTION AND HYPOTHESIS

The following research question was raised for the study:

To what extent does the continuous assessment of junior secondary school students (JSCA) correlate with their Junior Secondary School Certificate Examination (JSCE) scores in mathematics?

The following null hypothesis was also formulated for the study.

There is no significant relationship between the continuous assessment scores of Junior Secondary School Students (JSCA) and their Junior Secondary School Certificate Examination (JSCE) scores in Mathematics.

From the table above, the extent to which JSCA and

Table 2: The results of the study for the years 2000 to 2004

Year	Variables	DF	r	r ²	r ² %	t	Decision
2000	JSCA vs JSCE	800	0.29	0.084	8.4	0.86	Significant
2001	JSCA vs JSCE	905	0.74	0.55	5.5	0.67	Significant
2002	JSCA vs JSCE	979	0.31	0.096	9.6	2.7	Significant
2003	JSCA vs JSCE	1004	0.62	0.36	3.6	2.2	Significant
2004	JSCA vs JSCE	1010	0.08	0.006	0.6	0.22	Significant

JSCA = Junior Secondary Continuous Assessment
 JSCE = Junior Secondary Certificate Examination

JSCE are related is 0.29, 0.74, 0.31, 0.6 and 0.08 respectively for the years 2000, 2001, 2002, 2003 and 2004 samples respectively. These coefficients both show the extent to which some individuals occupy the same relative position on JSCA and JSCE in each of the samples studied. These coefficients lie between 0 and 1, thus implying that some degree of positive correlation exists between JSCA and JSCE which answers the research question. Table 2 also shows that there was a significant relationship between JSCA and JSCE for all the years studied.

DISCUSSION

Borg and Gall (1983) had provided a guide for interpreting correlation coefficients obtained in these types of relationships. These guidelines are summarized below:

- i. That the correlation coefficient between 0.2 and 0.35 shows a slight relationship between variables, although the relationship may be statistically significant.
- ii. That the correlation coefficient around +0.5 may give the achievement of group prediction, and are very useful.
- iii. Also that a correlation between 0.65 and 0.85 may make possible group prediction that are accurate enough for most purposes, but prediction studies in education very rarely yield correlation this high. But according to Haber and Runyon (1973) the correlation coefficient can be squared to obtain the extent to which variables under study vary. The squaring of coefficient, r^2 gives such values called the coefficient of determination r^2 . It is on these bases that the correlation coefficient obtained in this study are interpreted and discussed.

From table 2, the correlation coefficient for 2000, 2002 and 2004 samples show a slight relationship between JSCA and JSCE, while that of 2001 and 2003 samples lie closer to +1, thus giving a stronger degree of correlation, which may make possible group prediction. Correlation of 0.29, 0.31 and 0.08 indicate that $(0.29)^2$ i.e. 8.4%, $(0.31)^2$ i.e. 9.6% and $(0.08)^2$ i.e. 6% of the variance in JSCA and JSCE are common to both. The values

8.4%, 9.6% and 0.6% are also the coefficients of determination, showing the predictive value between JSCA and JSCE for the 2000, 2002 and 2004 samples respectively. For the 2001 and 2003 samples, the correlation of 0.74 and 0.6 indicate that $(0.74)^2$ i.e. 55% and $(0.6)^2$ i.e. 36% of the variance in JSCA and JSCE are common to both. 55% and 36% are the coefficients of determination, showing the predictive values between JSCA and JSCE for the 2001 and 2003 samples. The finding here is in agreement with that of Nwaogazie (2009) who found from a similar study in Imo State that there is a significant relationship between JSCA and JSCE scores in mathematics.

The study shows significant predictive values for only the years 2001 and 2003. The implication of this is that teachers have to pay more serious attention to the continuous assessment of students at this level to improve their performance in the external JSCE at the end of JSS.

CONCLUSION

So far, the above interpreted correlation coefficients show the extent to which JSCA and JSCE are related for the 2000, 2001, 2002, 2003 and 2004 samples respectively. Generally, all the coefficients for this study lie between 0 and 1, implying that all the coefficients are positive and all of them are found to be significant at 0.05 level of significance.

Also the correlation coefficients were used in obtaining the t-values to test the significance of the relationships. For the years considered, the t-values were all found to be significant at 0.05 level of significance.

Hence one can conveniently say that continuous assessment scores have an effect on the final examinations cores obtained by students at the junior secondary school (JSS) level in mathematics. The study therefore, recommends that continuous assessment of students in mathematics should be given serious consideration by teachers and school administrators since the choice of subjects at the senior secondary school level is dependent on students' performance at the JSCE.

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