International Journal of Education Humanities and Social Science

ISSN: 2582-0745
Vol. 6, No. 04; 2023

EXTENT PHYSICS SUBJECT CONTINUOUS ASSESSMENT PREDICT STUDENTS' PHYSICS FORM FOUR NATIONAL EXAMINATIONS RESULTS IN SECONDARY SCHOOLS IN KILIMANJARO REGION, TANZANIA

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https://doi.org/10.54922/IJEHSS.2023.0560

ABSTRACT

This study examined the extent to which physics subject continuous assessment predicts students' form four national examinations results. The study was guided by one research question and one hypothesis. The study was also guided by validity Test theory developed by Kelley (1927). The study employed convergent design under mixed research methods. The sample of this study included 35 secondary schools, 35 heads of schools, 35 academic masters/mistresses, 70 physics teachers, 05 District secondary education officers and 05 District school quality assurer officers. Stratified simple random technique was used to select physics teachers and students. The heads of schools, district secondary education officers, academic masters/mistresses and district school quality assurers officers were directly included making a total of 185 respondents from a total population of 1418. Research instruments included questionnaires, interview guide and document analysis schedule. For quantitative data analysis the researcher used both descriptive and inferential statistics. For qualitative data analysis the researcher used thematic analysis for analyzing qualitative data. Data for descriptive statistics were analyzed using frequencies, percentages and mean scores. With regard to inferential statistics, regression analysis was used to test hypothesis at significance level of 0.05. Qualitative data were analyzed thematically whereby data were familiarized, organized, coded, reduced and presented in verbatim. The findings indicated that physics subject continuous assessment predicts to low extent physics form four national examination results. The study concluded that physics subject continuous assessment contribute to a low extent in predicting students' physics form four national examination results. The study recommended that physics teachers together with school administrators in secondary schools should ensure that the whole process of conducting continuous assessment in schools has high extent in predicting students' performance in physics subject form four national examinations results.

Keywords: Extent, Continuous Assessment, Prediction, Physics, National Examinations, Results.

1. INTRODUCTION

Assessment is a systematic, continuous process of monitoring various pieces of learning to evaluate learners' achievement and instructional effectiveness. It also refers to activities that are designed to measure learners' achievement from an instructional programme (NECTA guideline, 2021). Assessment is any procedure or activity that is designed to collect information about the

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knowledge, attitude, or skills of the learner or group of learners (Yambi, 2018).For assessment to support learning it must focus on the gap between the current student's capabilities and the desired student's capability, and recommends approaches that can be utilized to bridge the gap (Wiliam, 2010, 2011). Globally there has been a strong movement in recent years to use Continuous Assessment scores in improving curriculum standards as a basis for assessing learners' performance such as in USA (Fraser, 2016).Also African countries notably Kenya, Zambia, Ghana, Liberia and Tanzania introduced the use of Continuous Assessment (CA) educational system in evaluation of pupils and students at all levels of schooling (Kellaghan & Greany ,2003).

In the Tanzania context continuous assessment (CA) was introduced for the first time during 1976 after the Musoma resolution (Njabili, 1987)and the operationalization of CA in Tanzania came officially in 1995 after the establishment of Tanzania National Education and Training Policy (ETP), which stipulated that CA score shall contribute 50% of the total weighting of the students' final results. This means that the total marks for the final examination shall include the 50% marks from CA and 50% marks from the final examination (URT, 1995). In 2004 to 2008 the Ministry of Education Science and technology (MoEST) and through, Tanzania Institute of Education (TIE), reviewed school curricula at all levels of education. One of the reviews was assessment procedures in school system in teaching and learning aimed at shifting the teaching and learning paradigm from content-based to competency-based (MoEVT, 2007).

One of the major factors was that graduates should be assessed by the use of continuous assessment (CA) and national examinations as assessment system. As per the national examination guidelines, teachers are required to assess students continuously at the school level and submits students' CA scores to the National Examinations' Board (NECTA, 2003), (Ndalichako & Komba, 2014). Thus the main purpose of having a CA scheme as an integral component of assessment procedures in the Tanzanian education system was to eliminate or minimize the element of risk associated with a single examination, and to give a valid indication of student achievement (Njabili, 1987). On implementing this, NECTA elaborated that, candidates' continuous assessment marks shall be obtained through terminal tests (two terms in a year), and one project (NECTA, 1991 & 2004). But Currently NECTA introduced the use of CA scores from a school which includes tests, terminal, annual examinations, projects and Regional mock examinations. These contribute 30 percent of the final national examination results which NECTA compiles through the PReMS System. Furthermore, school quality assurers shall have the capability to monitor and evaluate teaching and learning process by focusing on the kinds of assessment activities used by teachers (NECTA guideline, 2021).

Despite physics subject in Tanzania O-level secondary school is a biased subject being opted with very few students but the performance in national examinations have been relatively low all the years regardless high scores of CA from schools which are sent to the NECTA (Popham, 2014).

Additionally, what could be hindering students who failed in physics subject is not self-evident. The extent to which physics subject continuous assessment predict form four National Examinations results in secondary schools is still a matter of debate in the secondary schools system in Tanzania which called for the current study. Therefore this study investigated on the

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extent to which physics subject continuous assessment predict form four National Examinations results in secondary schools in Kilimanjaro region Tanzania.

2. STATEMENT OF THE PROBLEM

In pursuit of student's academic performance, school continuous assessments are of great importance. In an attempt to help teachers improve in their students' performance, the Ministry of Education Science and Technology (MoEST) through NECTA has put in place continuous assessment framework for secondary school students (NECTA guideline, 2021). Educational stakeholders have been motivating students' to perform well through school continuous assessment to final national examinations results. Despite these efforts, student's performance in physics subject in Tanzania secondary schools in national examinations is still not encouraging as is still below average. The resultant feature has been inconsistent low performance of students in physics subject in Secondary school national Certificate examinations (Tobi, 2015). This undermines the future of many students that are in schools that persistently perform relatively low in physics subject despite the presence of high continuous assessments scores as most students lie in D and F grades(NECTA results 2017-2020). What therefore remains disturbing to most of educational stakeholders is whether physics subject continuous assessment predicts students' performance in form four national examinations results in secondary schools in Tanzania. Studies by Asaph (2020), Gabriel et.al.(2019), Myombe and Mushi (2022) put little emphasis on continuous assessment in relation to students final examinations. However little attention has been paid on the extent to which physics subject continuous assessment predict form four National examinations results. Therefore In filling this gap, the current study investigated the extent to which physics subject continuous assessment predict physics form four National examinations results in Secondary schools in Kilimanjaro region Tanzania.

3. RESEARCH QUESTION

The study was guided by the following research question:

To what extent physics subject continuous assessment predict physics form four National Examinations results in secondary schools in Kilimanjaro Region?

4. RESEARCH HYPOTHESIS

Ha. There is no significant relationship between physics subject continuous assessment mean scores and form four physics national examinations mean scores results.

5. SIGNIFICANCE OF THE STUDY

The study examined the extent physics subject continuous assessment predict form four national examinations results in secondary schools in Kilimanjaro region Tanzania. The findings of this study should help education stake holders in this case teachers, students, parents and the government to get ideas on continuous assessment if contribute to students performance in final national examinations. Also the findings of the study should contribute knowledge to the field of research in education context in secondary schools on the extent physics subject continuous

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assessment predict physics form four national examination results. Moreover, the findings of this study should inform the policy makers to improve on continuous assessment practices in secondary schools for effective teaching and learning to achieve educational goals. Likewise, the findings of this study should add value to the theories used in this study. The researchers critique has made contribution to improving theory that guided the study.

6. THEORETICAL FRAMEWORK

The study was based on the Validity Test theory which was propounded by Kelley 1927). General conceptions of validity theory grew out of basic concerns about the accuracy of score meanings and the appropriateness of score uses and they have necessarily evolved over time as test score uses that have expanded, as proposed interpretations have been extended and refined, and as the methodology of testing has become more sophisticated. The theory has relevance to this study because the theory is particularly applicable to the teaching and learning of various subjects including preparation of continuous assessment tests on physics subjects since it seeks to integrate various strands of evidence into a coherent account of degree to which existing evidence and theory support the intended interpretation of assessment scores for specific uses.

Validity test theory therefore supports the arguments that assessment results can be used as determinant of teacher's competence that forms the basis of this study. This indicates that if all these evidences and arguments of this theory are well integrated in practicability of continuous assessment had direct impact on secondary school in influencing students' academic performance in Tanzania secondary schools. The validity Test Theory has three relating attributes. First attribute is construct this may be established through effective adherence of a measure to **existing theory and knowledge** of the concept being measured.

To achieve construct validity, teachers have to ensure that their indicators and measurements are carefully developed based on relevant existing knowledge. The Second attribute is content which examine the extent to which the measurement **covers all aspects** of the concept being measured. This determine whether continuous assessment aims to measure a class of students' level focusing on reading, writing and speaking components in the school system for good students academic performance. The third attribute is criterion which focuses on the extent to which the result of a measure corresponds to **other valid measures** of the same concept. This attribute evaluates how well a test can predict a concrete outcome, or how well the results of a teachers test in class approximate or correlate with the results of another test. In order to assess criterion validity, teachers in a school system need to calculate the correlation between the results of their measurement and the results of the criterion measurement. If there is a high correlation, this gives a good indication that the teachers test predicts what was intended to measure.

7. EMPIRICAL REVIEW

This section contains empirical review based on the extent to which physics subject continuous assessment predict form four national examinations results in secondary school in Kilimanjaro region.

The study by Dorcas (2020), examined the influence of continuous assessment on academic performance of secondary school students in Hong Local Government Area of Adamawa State.

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The study adopted a survey research design to identify the influence of continuous assessment on academic performance of secondary school students in science subjects.

The findings revealed that there was a significant relationship between continuous assessment scores and academic performance of students in science subjects. There was no significant difference between the perception of male and female teachers on attitude of students towards continuous assessment. There was no significant difference between continuous assessment scores of male and female students. It was concluded that the continuous assessment had critical impact on academic performance of secondary school students in science subjects. The current study involved key informants of education context in secondary schools such as secondary education officers and school quality assurer officers who were not involved by the previous study. The involvement of all these key informants could give detailed information pertaining on the ways through which physics subject continuous assessment predicts student's performance in final national examinations results

The study conducted by Gabriel et al. (2019), on continuous assessment scores as a predictor of students' achievement in science subjects at the Junior Secondary School Level in Makurdi Local Government Area of Benue State, Nigeria. The study employed ex-post-facto research design. It explicitly focused on the correlation and regression between Continuous Assessment scores and Basic Education Certificate Examination (BECE) results. Ex-post facto research design was adopted for the study with document analysis as key instrument of data collection. A simple random sample of 718 students drawn from five secondary schools in Makurdi Local Government Area was used. Pearson Product Moment Correlation and Regression Analysis were used to answer the research questions while the t-test of correlation coefficient and t-test of regression analysis were used to test the stated hypotheses at 0.05 level of significance. The findings revealed that there was a strong positive correlation as well as regression between continuous assessment scores and Basic Education Certificate Examination results. The outcome of this study has shown that Continuous Assessment scores can correctly predict students' achievement in Basic Education Certificate Examination Results. The previous researcher used only one instrument of data collection which was document analysis that could not capture inner feelings of respondents hence lacked in-depth understanding of phenomenon. The current study employed multiple instruments of data collection such as questionnaire, interview guide and document analysis schedule which helped the researcher to get in –depth understanding of the phenomenon.

Senyefia (2017) conducted a study on the validity of Physics Mock results of students in WASSCE and BECE in Ghana. Ex-post facto design was used. The main research instrument was the questionnaire which was used to collect information from each of the categories. One hundred and sixty-four (164) students were selected by convenience sampling technique from 15 public secondary schools in Ghana. The data used for the study were results of WASSCE, BECE and unprocessed raw scores of mock examination from the various schools selected. The study found no significant difference between the WASSCE and Mock grades in Core Physics. Mock Core physics was found to have a WASSCE predictive power of 92%.There was also no significant difference between BECE and WASSCE grade with a predictive power of 90%. The study however found a significant difference between the BECE and Mock physics grades.

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Based on the findings of this study, it was recommended that mock examinations be made compulsory for WASSCE candidates since it has the capacity to predict their grades in WASSCE. The use of convenience sampling techniques by the previous study was not compatible with the design used which could raise questions on validity and reliability of the study findings. In this case, the current study employed appropriate research design in which convergent design was employed that added credibility of the findings

Asaph (2020) conducted a study to establish the impact of continuous assessment on student's academic performance in secondary schools in Kabale Municipality Uganda. The objectives of the study were: to find out the continuous assessment strategies used by teachers in secondary schools in Kabale Municipality; to find out the teachers' perception of whether students exposed to various continuous assessment strategies perform better in the final examination than their counterparts; and, to find out the impact of continuous assessment strategies used by teachers on students academic performance in secondary schools in Kabale Municipality. The study used cross-sectional research design. A sample size of 200 respondents was used and respondents were selected using simple random and purposive sampling techniques. Questionnaires, interviews and documentary review were used in data collection. The study showed that continuous assessment strategies were found to have a positive relationship to students' performance in the final examinations. The previous study employed purposive sampling procedure which was not compatible with cross-sectional design, hence could raise questions on validity and reliability of the study findings. In this case the current study employed appropriate sampling procedures and convergent design which added credibility of the study findings

The study by Ochieng (2012) sought to establish the relationship between performance in internal (teacher made) summative examinations and external summative public national examination in Kenya. The objectives were to establish whether there is significant relationship between internal summative examination and external summative examination in secondary schools in Kenya, determine which subject has a greater capacity in predicting performance in external summative examination (KCSE), and the year with more weight in predicting performance in external summative examinations. The study adopted a descriptive research design. The target population of the study comprised of all the students from four secondary schools who registered in Form 1 in 2007 and sat for their KCSE examination in 2010.Examination scores for internal summative examinations and KCSE examination scores for 60 students from form 1 in 2007 to form four in 2010 were purposively sampled from each of the four schools targeted making a sample of 240 students. The instrument used to collect data was an inventory. The inventory requested test scores derived from tests constructed, administered, and scored by teachers in secondary schools for science subjects. The study revealed that there is significant relationship between the internal summative examination scores and the external public summative examination scores with physics as a major predictor of student performance and that the students' performance in the internal summative examination in first year cannot be used to predict the performance in the external summative examination. Form four is a major predictor followed by the performance in form three and then finally the performance in form two.

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On top of that, the use of purposive sampling techniques by the previous study was not compatible with the design used which could raise questions on validity and reliability of the study findings. In this case, the current study employed appropriate research design in which convergent design was employed that added credibility of the findings.

The study by Myombe and Mushi (2022) investigated on whether there is correlation between continuous assessment scores and national form four final examination results in Tanzania 2021/2022 in Morogoro municipality. The main purpose was to assess the correlation between CA scores and form four final examination results basing in physics, biology, chemistry, mathematics and English language. The study employed Ex post facto research design. The data were collected by using documentary instrument where the head of schools had given the Mock results of 2021which were caped as CA documents due to the fact that mock is regarded as a reflection of the NECTA results since it is always done after undergoing several number of assessments to the candidates where mock becomes the almost last measure of the candidates to attempt the national form four examination and national form four results 2021/2022 were taken from the NECTA website. The findings showed that from five subjects that is Biology, Chemistry, Physics, Mathematics and English language, there were positive correlation between CA scores and NECTA results 2021/2022 because the significance level was .000 then in Biology (r) = .845, Physics r = .773, Chemistry r = .886, Mathematics r = .715 and English language r = .849 respectively. The use of only one instrument by previous study limited triangulation of information and hence lowered validity of findings. The current study used variety of research instruments such as questionnaires, interview guide and document analysis schedule that helped triangulation of instruments which produced reliable findings.

Masatu (2013) conducted a study on Assessment of the Current Status of Students' Academic Performance in Science Subjects in Relation to the Initiatives implemented in secondary schools in Tanzania a case of Gairo District, Morogoro. The central argument of the study was to assess the current status of students' academic performance in science subjects in relation to the initiatives implemented to improve students' academic performance in these subjects, a case of Gairo district, Morogoro. Also was to examine initiative used to improve students' academic performance in science subjects and was to examine the possible measures to be taken to improve students' academic performance in science subjects. The research conducted in Gairo's ordinary public secondary schools. The research was a case study and the researcher used two research techniques of data collection whereby face- to face-Interview was conducted to secondary schools' administrative leaders and questionnaires were distributed to science teachers and students. It was found during the study that, students' academic performance in science subjects in ordinary secondary schools in Gairo district was poor. The state of students 'academic performance in science subjects in Gairo District is contributed by some factors as analyzed by the study and some initiatives has been taken to improve students' academic performance in science subjects. The current study bridged the gap to the previous study findings by investigating on how the findings obtained could predict students' performance in their final national examinations results.

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8. RESEARCH METHODOLOGY

The study adopted convergent research design under mixed research approach. It is useful when the researcher has limited time for collecting data in the field and must gather both types of data in one visit. The researcher needs both quantitative and qualitative forms of information from every participant (Creswell & Plano Clark, 2018; Creswell & Creswell, 2018). The Sample comprised of; 70 physics teachers were selected by stratified random sampling technique followed by simple random procedures, 35 academic masters/mistresses, 35 heads of secondary schools, 05 district secondary education officers and 05 district school quality assurer officers were automatically included. The study essentially used a combination of both qualitative and quantitative data collection instruments such as questionnaires for physics teachers and academic masters/mistresses, interview guide for heads of secondary schools, district secondary education officers and districts school quality assurance officers and document analysis schedule. Validity of quantitative research instruments was determined by research experts while validity for qualitative research instruments was ensured by credibility and authenticity. Reliability of the questionnaire was tested by Cronbach Alpha technique and the data were 0.752 and 0.782 respectively. The likert scale items in the questionnaire were subjected to the Statistical Package for Social Sciences (SPSS) and the alpha was calculated for each questionnaire. Reliability of qualitative research instruments were ensured by triangulation and peer debriefing. For quantitative data analysis the researcher used both descriptive and inferential statistics. For qualitative data analysis the researcher used thematic analysis for analyzing qualitative data. For quantitative data researcher used both descriptive and inferential statistics. Data for descriptive statistics were analyzed using frequencies, percentages and mean scores. With regard to regression analysis was used to test hypothesis at significance level of 0.05. Qualitative data were analyzed thematically whereby data were familiarized, organized, coded, reduced and presented in verbatim.

9. RESULTS AND DISCUSSION

This section provides the study results on the extent to which physics subject continuous assessment predict physics form four national examinations results. The researcher used extent likert scale to measure the extent physics continuous assessment predict physics form four national examinations results and was integrated with real physics form four national results from document analysis schedule.

Extent to which Physics subject continuous assessment predict physics form four National Examinations results

The study aimed to identify extent physics subject continuous assessment in predicting form four physics National Examinations results. A questionnaire was used to capture the information. The information was obtained through questionnaire from physics teachers and academic masters/mistress then from the interview with heads of secondary schools, district education officers and school district quality assurers. Similarly document analysis schedule was used to capture information on continuous assessment mean scores and physics form four national examinations mean scores. The aim of seeking for this information was to investigate whether or not physics subject continuous assessment can predict form four national examinations physics results. *Results from physics teachers, academic masters/mistresses and document analysis schedule are presented in table1, 2, and 3 respectively. Table 1 presents responses from physics*

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teachers towards physics subject continuous assessment in predicting form four national examination results

Table 1: Physics Teachers Response on the extent to which physics subject continuous assessment scores predict physics form four National Examination results (n=62)

S/N	Statement	VLE		LE		ME		HE		VHE		Mean
		F	%	f	%	f	%	f	%	f	%	
1.	The more the CA activities the better the students' performance in form four national examinations in physics subject	10	16.1	37	59.7	2	3.2	8	12.9	5	8.1	2.37
2.	Some students perform better on CA tests but perform poorly in form four National examinations in physics subject	5	8.1	38	61.3	7	11.3	9	14.5	3	4.8	2.47
3.	Continuous assessment enable students to perform better in form four National examinations in physics subject than teacher made examinations	6	9.7	36	58.1	9	14.5	7	11.3	4	6.5	2.47
4.	Continuous assessment build the whole mind of the student which raise high performance in form four National examinations in physics subject	9	14.5	45	72.6	5	8.1	2	3.2	1	1.6	2.05
5.	Continuous assessments help students to realize specific errors in their solutions or answers for good results in form four National examinations in physics subject	12	19.4	37	59.7	5	8.1	5	8.1	3	4.8	2.19
6.	CA improves teaching and learning process leading to improved high students 'performance in form four National examinations in physics subject	13	21.0	47	75.8	0	.0	1	1.6	1	1.6	1.87
7.	Some students perform poorly in CA tests but their performance raise in form four National examinations in physics subject	5	8.1	46	74.2	3	4.8	4	6.5	4	6.5	2.29

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8.	Students learn questions answering techniques and question approach methods through CA and perform better in final National examinations	9	14.5	36	58.1	7	11.3	4	6.5	6	9.7	2.39
9.	Students mostly put much emphasize on CA preparation and their performance slowdown in form four National examinations in physics subject	8	12.9	36	58.1	6	9.7	9	14.5	3	4.8	2.40
10.	Students are more knowledgeable on form four National examinations in physics subject techniques of questions than continuous assessment tests in school system	5	8.1	32	51.6	10	16.1	7	11.3	8	12.9	2.69
	Grand Mean											**2.32**

Source: Field Data (2022) Key: Very Low Extent (VLE), Low Extent (LE), Moderate Extent (ME), High Extent (HE), Very High Extent (VHE)

Data presentation on the extent physics continuous assessment predict physics form four national examinations results was presented in a way with items with five-point rating scale ranged from very low extent(one point) to a very high extent (five points). The responses from the physics teachers were then quantified to generate the mean scores as presented in table 1. Since the calculated values were in two decimal places, therefore, the interpretation was based on the scale suggested by Pimentel (2019) where 1.00-1.79 represents to very low extent, 1.80-2.59 represents to low extent, 2.60-3.39 represents moderate extent, 3.49 represent-4.19 represents to high extent and 4.20-5.00 represents to very high extent.

Data in table 1 illustrate that to low extent (1.87) mean score of physics teachers CA improves teaching and learning process leading to improved high students 'performance in form four National examinations in physics subject. This indicates that teaching and learning process that has been conducted through continuous assessment is very low comparing with exactly students performance in final national examinations. These findings are very little in line with the study conducted by Mwebaza (2010) which revealed that there was a positive relationship between some of the continuous assessment strategies used and students' performance. Many teachers of "A" level secondary schools in Masaka utilized various continuous assessment strategies to enhance their students" performance.

Table 1 indicates that physics teachers rating that to low extent (2.05) mean score Continuous assessment build the whole mind of the student which raise high performance in form four National examinations in physics subject**.**This implies that continuous assessment has less to do on students mind in relation to raise high performance in national examinations. These findings are not in line with the findings by Dorcas (2020) who revealed that there was a significant relationship between continuous assessment scores and academic performance of students in

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science subjects. This could be due to the facts that physics subject which is an optional subject hence students do not take a very serious time in concentrating on it in comparisons to other subjects.

On the other hand, (2.37) mean score of physics teachers indicated that to low extent the more the CA activities the better the students' performance in form four national examinations in physics subject. This implies that despite many Continuous assessment activities done in physics subject but still has low contributions on physics form four national examinations results. This finding is not in line with the findings by Gabriel et al (2019) who revealed that there was a strong positive correlation as well as regression between continuous assessment scores and Basic Education Certificate Examination results. The researchers view on this note was that the difference between the two contexts could results difference outcomes on continuous assessment as the country could be more advanced on assessment procedures compared to Tanzania country.

Through table 1 (2.19) mean score of physics teachers indicated that to low extent Continuous assessments help students to realize specific errors in their solutions or answers for good results in form four National examinations in physics subject. This implies that continuous assessment has less contribution for students in detecting mistakes during classroom sessions in teaching and learning before final national examination results. These findings were in line with the study conducted by Baweja (2017) in India who did a study to identify errors and misconceptions among students of both urban and rural schools and revealed that Both boys and girls committed errors due to mistakes, lack of knowledge and misconceptions, but the direction of the results showed rural secondary school students committed more errors in comparison to urban secondary school students which had impacts on students performance.

Again table 1 (2.39) mean score of physics teachers indicated that to low extent students learn questions answering techniques and question approach methods through CA and perform better in final National examinations. This implies that the techniques set in continuous assessment tests are not good predictor of students final national examination results as students normally have low mastered technical skills. These findings are contrary with the study by Agbele et al. (2020) who revealed that there is a significant difference between the mean score of students taught with collaborative techniques approach method and traditional method. Results showed that collaborative inquiry techniques approach method of teaching is far better than the traditional method. The study also revealed that the male students performed better in Physics as a science subject than their female counterparts.

Lastly table 1 (2.47) mean score of physics teachers indicated that to low extent Continuous assessment enable students to perform better in form four National examinations in physics subject than teacher made examinations. This implies that few physics teachers believe that teacher made tests has little contributions on students' performance than final national examinations .These findings concur with the study by Reboredo (2017) who revealed that the conditional probabilities of getting a better final exam grade than continuous assessment grade were notably lower than the conditional probabilities of gaining a similar or lower grade.
The average mean scores of 2.32 indicated that physics subject continuous assessment predict form four physics national examinations results to a low extent. The researcher too was

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interested in academic masters/mistresses. The researcher too was interested in academic masters'/mistresses' Response on physics subject continuous assessment in predicting physics form four national examination results and presented in table 2.

Table 2: Academic Masters' Response on the extent to which physics continuous assessment scores predict physics form four national examination results (n=31)

S/N	Statement	VLE		LE		ME		HE		VHE		Mean
		f	%	f	%	f	%	f	%	f	%	
1.	The more the CA activities the better the students' performance in form four national examinations in physics subject	20	64.5	5	16.1	2	6.5	3	9.7	1	3.2	1.71
2.	Some students perform better on CA tests but perform poorly in form four National examinations in physics subject	10	32.3	17	54.8	0	.0	3	9.7	1	3.2	1.97
3.	Continuous assessment enable students to perform better in form four National examinations in physics subject than teacher made examinations	3	9.7	20	64.5	4	12.9	2	6.5	2	6.5	2.35
4.	Continuous assessment build the whole mind of the student which raise high performance in form four National examinations in physics subject	10	32.3	18	58.1	2	6.5	0	.0	1	3.2	1.84
5.	Continuous assessments help students to realize specific errors in their solutions or answers for good results in form four National examinations in physics subject	11	35.5	18	58.1	2	6.5	0	.0	0	.0	1.71
6.	CA improves teaching and learning process leading to improved high students 'performance in form four National examinations in physics subject	16	51.6	11	35.5	1	3.2	2	6.5	1	3.2	1.74
7.	Some students perform poorly in CA tests but their performance raise in form four National examinations in physics subject	2	6.5	19	61.3	4	12.9	6	19.4	0	.0	2.45
8.	Students learn questions answering techniques and question approach methods through CA and perform better in final National examinations	7	22.6	17	54.8	4	12.9	2	6.5	1	3.2	2.13

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9.	Students mostly put much emphasize on CA preparation and their performance slowdown in form four National examinations in physics subject	5	16.1	19	61.3	2	6.5	2	6.5	3	9.7	2.32
10.	Students are more knowledgeable on form four National examinations in physics subject techniques of questions than continuous assessment tests in school system	2	6.5	16	51.6	8	25.8	4	12.9	1	3.2	2.55
	Grand Mean											**2.08**

Source: Field Data (2022) Key: Very Low Extent (VLE), Low Extent (LE), Moderate Extent (ME), High Extent (HE), Very High Extent (VHE)

Data presentation on the extent physics continuous assessment predict physics form four national examinations results was presented in a way with items with five-point rating scale ranged from very low extent(one point) to a very high extent (five points).the responses from the physics teachers were then quantified to generate the mean scores as presented in table 2. Since the calculated values were in two decimal places. Therefore, the interpretation was based on the scale suggested by Pimentel (2019) where 1.00-1.79 represents to very low extent, 1.80-2.59 represents to low extent, 2.60-3.39 represents moderate to extent, 3.49 represent -4.19 represents to high extent and 4.20-5.00 represents to very high extent.

According to data in table 2(1.71) mean score of academic masters/mistresses illustrated that to very low extent the more the CA activities the better the students' performance in form four national examinations in physics subject. This implies that despite the schools use many Continuous assessment activities in physics subject but has low impacts on students' performance in form four national examinations. These findings does not concur with the findings by Gabriel et al. (2019) who revealed that there was a strong positive correlation as well as regression between continuous assessment scores and Basic Education Certificate Examination results. The researchers view on this note is that perhaps the continuous assessment activities which mostly being used in schools in physics subject are not emphasized by teachers to effective prediction on students' performance in their final national examinations.

As it is also indicated in the table 2 (1.84) mean score of academic masters/mistresses showed that to low extent Continuous assessment build the whole mind of the student which raise high performance in form four National examinations in physics subject .This could mean that continuous assessment has less to do on students mind in relation to raise high performance in national form four examinations. These findings were not in line with the findings by Dorcas (2020) who revealed that there was a significant relationship between continuous assessment scores and academic performance of students in science subjects. This could be due to different teaching and learning environment between the two countries which could cause different in performance among students.

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On the other hand, (1.74) mean score of academic masters/mistresses indicated that to very low extent CA improves teaching and learning process leading to improved high students 'performance in form four National examinations in physics subject. This could mean that form four national examinations is not a necessary a products of continuous assessment on students' performance. These findings concur with the findings by Senyefia (2017) who revealed that there were no significant differences between the WASSCE and Mock grades in predicting students' performance in Core Mathematics subject. Researcher's view on this note is that CA teaching and learning process has very little predictive power on students' final examinations.

Nevertheless, table 2 (2.35) mean score of academic masters/mistresses indicated that to low extent Continuous assessment enable students to perform better in form four National examinations in physics subject than teacher made examinations. This could mean that if continuous assessments are effectively conducted in schools could have high extent of predicting students' final examinations results. These findings concur with the findings by Reboredo (2017) who revealed that the conditional probabilities of getting a better final exam grade than continuous assessment grade were notably lower than the conditional probabilities of gaining a similar or lower grade.

Though table 2 again (2.55) mean score of academic masters/mistresses indicated that to low extent Students are more knowledgeable on form four National examinations in physics subject techniques of questions than continuous assessment tests in school system. This implies that few academic masters/mistresses they had lost trust on the significance of school made continuous assessment tests than final national examination results. These findings were contrary with findings obtained by Worale (2017) whose findings revealed that monthly tests enables complete understanding of concepts, determines the memory and reasoning capacity of students, helps teachers to determine the gaps in students understanding of concepts, encourages students to attend classes and students retain the materials for a long period of time or make them ready for exams. Also It was revealed out that class exercise affects students academic performance in the following ways; encourage student to work hard and prepare for examination, class room exercises encourage students to research, class room exercises encourage students to independently, critically and creatively think about what they have studied, minimizes failure amongst students during examinations, and encourages students to form discussion groups for easy understanding of concept.

Furthermore, table 2 (2.45) mean score of academic masters/mistresses indicated that to low extent some students perform poorly in CA tests but their performance raise in form four National examinations in physics subject. This could mean that performance in school internal examinations is not a key determinant of students' performance in their final national examinations. Researchers views on this matter is that students performance to either low or higher is attributed with not only a single factor rather than multiple disciplines.

Finally, table 2 (2.32) mean score of academic masters/mistresses indicated that to low extent students mostly put much emphasize on CA preparation and their performance slow down in form four National examinations in physics subject. This could mean that students in schools use most of their time preparing effectively and efficiently for school internal examinations which are conducted regularly and within short period of time such as midterm test and terminal

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examinations in which their scripts are marked and turned back to them and thus put less concentration on final national examinations which normally occur once a year and students scripts are not brought back rather than observing final grades and divisions only. Researcher's views on this matter are that perhaps students in schools are not taught by their physics teachers on how to balance their study concentrations in both internal examinations and final examinations. In these note students they are not given hand book guidelines from national examinations council of Tanzania to observe the weight between topics and the area of great concentrations.

The average mean scores of 2.08 indicated that to low extent of physics subject continuous assessment predicts form four physics national examination results. Researchers views on this matter was contrary to what revealed from these findings hence still show that there are contributing factors in implementation of physics continuous assessment which results to the low mismatch between physics continuous assessment in schools and physics form four national examination results. The researcher was interested to check out the authenticity on the information obtained from physics teachers and academic masters through the document analysis schedule. The results are presented in table 3.

Table 3: School Continuous Assessment scores average and physics form four National Examination2019-2021

S/N.SCHOOL	CONTINUOUSASSESSMENT SCORES (%)				PHYSICS FORM FOUR NATIONAL EXAMINATIONS MEAN SCORES RESULTS (%)			
	YEAR			CA MEAN SCORES	YEAR			PHYSICS NATIONAL FORM FOUR MEAN SCORES
	2019	2020	2021		2019	2020	2021	
1	48	39	52	46.3333	4.5654	4.4894	4.3810	4.4786
2	60	65	62	62.3333	4.6000	4.1250	4.5000	4.4083
3	56	60	65	60.3333	4.8162	4.8831	4.4884	3.3726
4	75	72	70	72.3333	4.9630	4.4333	4.7500	4.7154
5	69	72	77	72.6667	4.0000	4.2632	4.4000	4.2211
6	70	65	78	71.0000	4.1556	4.3462	4.3548	4.2855
7	63	62	59	61.3333	4.8162	4.8831	4.8923	4.8639
8	71	63	65	66.3333	4.2778	4.0769	4.0909	4.1485

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9	78	72	76	75.3333	4.0385	3.7391	3.5200	3.7659
10	79	69	67	71.6667	4.0268	3.8462	3.6707	3.8479
11	65	68	67	66.6667	4.7692	4.9333	4.9474	4.8833
12	70	64	66	66.6667	4.6563	4.6774	4.6316	4.6551
13	60	52	56	56.0000	5.0000	5.0000	5.0000	5.0000
14	62	67	64	64.3333	4.6792	4.3750	3.8387	4.2976
15	80	76	78	78.0000	3.7027	4.0769	3.3467	3.7088
16	67	69	72	69.3333	4.8857	4.8103	3.4091	3.8610
17	46	53	56	51.6667	4.1311	4.4884	4.4419	4.3538
18	50	65	60	58.3333	4.3415	4.3421	4.4118	4.3651
19	68	40	70	59.3333	4.2941	4.2143	4.2500	4.2528
20	60	63	60	61.0000	4.2500	4.9091	4.5714	4.5768
21	46	38	45	43.0000	4.5385	4.9444	4.4800	4.6543
22	70	72	78	73.3333	4.6087	4.7813	4.9583	4.7828
23	76	78	67	73.6667	4.6667	4.7273	4.1667	4.5202
24	79	54	87	73.3333	4.8162	3.5407	4.6316	3.5062
25	86	89	87	87.3333	4.3750	4.7368	4.8313	3.7387
26	55	65	60	60.0000	4.7317	4.7660	4.5870	4.6949
27	70	72	70	70.6667	4.9474	3.7067	3.8974	3.6458
28	66	71	64	67.0000	4.4000	4.5385	4.6000	4.5128
29	84	86	85	85.0000	4.7500	4.6146	4.9615	3.6738
30	45	50	55	50.0000	4.5192	4.5172	4.4844	4.5069
31	76.7	78.1	83.3	79.3667	4.3684	4.4688	4.6333	4.4902
32	68	60	67	65.0000	4.6800	4.8923	4.9048	4.0659
33	76	80	74	76.6667	4.8857	4.1818	4.7526	4.3734
34	60	75	64	66.3333	4.8333	4.6667	4.6000	4.3667

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35	47.6	56.8	59.4	54.6000	4.8833	4.1667	4.8224	4.1241
GRAND MEAN	**65.78**	**65.17**	**67.59**	**66.1800**	**4.5421**	**4.4618**	**4.4345**	**4.4795**

Source: Field Data (2022)

Data presentation on grading systems are used to evaluate the educational performance by subject wise in Tanzania was presented in the level of performance classified into five point scale which is (1-1.9 GPA) excellent, (2-2.29 GPA) very good, (3-3.9GPA) good, (4-4.9GPA) satisfactory and (5.00GPA) failure (MoEST, 2019).

Data in table 3 illustrates that the average mean scores for continuous assessment was 66.1800 which according to NECTA grading system on students performance is B while the average mean score for National Examinations in physics subject for three years was 4.4795 which is satisfactory according to grading system by subject wise by NECTA and hence equivalent to D grades of students performance. This implies that the extent of schools Continuous assessment in physics subject has very little prediction on students' final national examinations results. These findings do not link with the findings by Gabriel et al. (2019) who revealed that there was a strong positive correlation as well as regression between continuous assessment scores and Basic Education Certificate Examination results. The researchers view on this note was that perhaps the continuous assessment scores mostly in physics subject were manipulated by teachers as what normally sent to the NECTA is not real students accumulated continuous assessment scores.

In order to triangulate these information the researcher interviewed heads of secondary schools, district secondary education officers and district school quality assurance officers to check on physics subject continuous assessment in predicting form four national examinations. The interview was conducted with one of heads of school (HOS2) who reported that:

> Based on my experience and to be open about 99% of continuous assessment does not predict students performance in form four national examinations for more than five years I have been in this schools. The remaining 1% is predictions for only few bright students and who normally fall in D grades. Example you find four students out of 19 who took physics subject proceed with physics' combinations in A-level studies and the rest is only arts combinations and they were very serious with physics in the classroom. (HOS2, Personal interview communication, December20, 2022).

This quotation from the head of school implies that physics continuous assessment predict physics form four national examinations results to the low extent

In addition, when an interview was conducted with District secondary education officer on the extent physics subject continuous assessment predicts physics form four national examinations results, the District secondary education officer (DSEO1) reported that:

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> I declare that there is a mismatch between schools assessment and NECTA evaluation on students continuous assessment. Also there is inconsistence on students NECTA prediction performance in physics subject between old secondary schools and community secondary schools. There is slight systematic on students performance in old secondary schools than in community secondary schools but what I can say from my experience is that there is no correlation of continuous assessment in community secondary schools in physics subject on students performance in national examinations and this is due to few physics teachers in these schools and thus poor teaching and learning. (DSEO1, Personal interview communication, january05,2023).

This quotation from the District secondary education officer shows that contribution of continuous assessment is still very low in predicting physics form four national examinations results.

Further more, when an interview was conducted with one of the district school quality assurer officer (DSQA1) on physics subject continuous assessment in predicting physics form four national examinations results, the districts school quality assurer officer reported that:

> Most of teachers have been complaining on physics subject continuous assessment as does not predicts students' final results. Also when my office goes to secondary schools within my districts in making inspections through document analysis , I found that to some schools about 98% for six years continuous assessment have never predicted students NECTA examinations results and students have been demoralized in studying physics subject.(DSQA1, Personal interview communication, January 19,2023).

This quotation from the Districts school quality assurance officer implies that there is no clear integration of continuous assessment in relation to physics form four national examinations results.

The researcher was also interested in testing a hypothesis to establish if physics subject continuous assessment scores predict form physics form four national examinations results. The results were summarized in table 4, 5 and 6 respectively.

Ho. There is no significant relationship between physics subject continuous assessment mean scores and form four physics national examinations mean scores results.

Assumptions for regression analysis technique

The variables are measured at the continuous level

There is a **linear relationship** between the two variables.

There are **no significant outliers**.

The samples are drawn from a normally distributed population

The variances along the line of best fit remain similar as one move along the line.

The residuals (errors) of the regression line are approximately normally distributed

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Before testing the hypothesis the researcher tested the normality test using Shapiro Wilk tests. The p-value obtained was greater than the significance level of 0.05. This justified that data was normally distributed and allowed to testing the hypothesis.

Table 4 :Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0.205[a]	0.042	0.013	0.3043229	0.042	1.454	1	33	0.237

a. Predictors: (Constant), Continuous Assessment Mean Scores

Table 5:ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.135	1	0.135	1.454	0.237[b]
	Residual	3.056	33	0.093		
	Total	3.191	34			

a. Dependent Variable: Mean GPA

b. Predictors: (Constant), Continuous Assessment Mean Scores

Table 6: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	4.889	0.343		14.246	0.000	4.190	5.587
	CA Mean Scores	-0.006	0.005	-0.205	-1.206	0.237	-0.017	0.004

a. Dependent Variable: Mean GPA

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Data in the tables 5, 6 and 7 indicate that there is no relationship between continuous assessment and form four national examinations results with $R^2 = 0.042$, F (1, 33) =1.454, p = 0.237. Since the p value was greater than 0.05 significance level, we failed to reject the null hypothesis. Therefore, physics subject continuous assessment scores could not predict students' performance in form four national examinations. The coefficient of determination (R^2) was 4.2% which was very week. This could mean that physics subject continuous assessment does not predict form four national examinations results. These data did not concur with what was suggested by validity test theory by Kelley (1927), who insisted that the accuracy of score meanings and the appropriateness of score uses can be used as determinant of learners' performance.

10. CONCLUSION

The study concluded that physics subject continuous assessment contribute to a low extent in predicting students 'physics form four national examination results in secondary schools because of the challenges physics teachers' encountered in implementing CA practices, low level of physics teachers competences in assessing students in secondary schools

11. RECOMMENDATION

The following recommendation is offered: The study recommended that the Ministry of Education, Science and Technology through Tanzania Institute of Education should keep on raising more awareness to physics teachers on preparation of continuous assessment practices in secondary schools which will reflect exactly with student's final examinations performance.

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