



## **A CRITICAL ANALYSIS OF THE IMPACT OF CONTINUOUS ASSESSMENTS DYNAMICS ON THE LEARNERS ATTITUDE TOWARDS MATHEMATICS IN SECONDARY SCHOOLS IN KENYA**

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### **Abstract:**

The purpose of the study was to critically analyse the impact of the dynamics of continuous assessments on learner's attitude towards mathematics in Kenyan Secondary Schools. The continued poor performance in mathematics may be attributed to the students' poor attitude towards the subject. How the learners develop a poor attitude towards the subject prompted the researchers, who teach mathematics to carry out this study? Learners encounter various forms of assessments in mathematics on daily basis. The objectives of the study were: a) To critically analyse the impact of monitoring of assessments on the attitude towards mathematics in secondary schools in Kenya, b) To find out the impact of the quality of assignments on the attitude of learners towards mathematics in secondary schools in Kenya, c) To determine the impact of peer influence towards assessments on the attitude towards mathematics in secondary schools in Kenya, d) To evaluate how resources used to give assessments affect the attitude of learners towards mathematics in secondary schools in Kenya, e) To establish the impact of reinforcements on the attitude of learners towards mathematics in secondary schools in Kenya. A qualitative research was carried out using a critical analysis design. The study concluded that the continuous assessment dynamics in mathematics go a long way in learners developing a negative attitude towards the subject. The researcher recommended that: schools should come up with assessment policies to help in monitoring continuous assessments, teachers need to be serviced on the construction and use of continuous assessment, schools need to have a variety of

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learning materials other than text books and schools need to nature a positive culture towards mathematics.

**Keywords:** continuous assessment, attitude, reinforcement, peer influence, dynamics, mathematics

## 1. Introduction

Continuous assessments are used on daily basis to support the learning process. According to Airsian (1991), assessment is the process of collecting, interpreting and synthesizing information, to help teachers understand their pupils, plan and monitor instruction and establish a conducive atmosphere. In Kenya, continuous assessments are used in formative evaluation. They are used to test whether not the skills and competencies have been mastered by the learners. Feedback from continuous assessments informs the teacher on the effectiveness of instruction strategy. Hassen (1998) pointed out that classroom assessment has now become the most crucial, frequent and pervasive issue in educational systems to determine; the quality of learning, what pupils know, how efficiently and what attitudes they have developed for future learning. As leaners interact with these important tools, they develop attitude towards them and mathematics. According to Allport (1935) the experiences of and individual lead to formation of mindsets which determine how the individual respond to related stimuli. The attitudes which leaners form towards continuous assessments impact positively or negatively on further acquisition of knowledge in the subject.

## 2. Statement of the Problem

According to the Kenya national examinations report (2008); dismal results are registered in mathematics at K.C.S.E level. This has not changed over the years. The continued poor performance in mathematics may be attributed to the students' poor attitude towards the subject. How the learners develop a poor attitude towards the subject prompted the researchers, who teach mathematics to carry out this study. Learners encounter various forms of assessments in mathematics on daily basis. The researcher sought to find out if the dynamics of continuous assessments may be leading to the students developing a negative attitude towards the subject.

### **3. Purpose of the Study**

The study sought to find out how the dynamics of continuous assessments could be leading to the learners developing of a negative attitude towards mathematics. The aim of this study was to critically analyze the impact of continuous assessments on learners' attitude towards mathematics.

### **4. Objectives of the Study**

The objectives of the study were:

1. To critically analyze the impact of monitoring of continuous assessments on the attitude of learners towards mathematics in Kenya.
2. To critically analyze the impact of the quality of continuous assessment tests on the attitude of learners towards mathematics in Kenya.
3. To critically analyze the impact of peer influence towards assessments on the attitude towards mathematics in Kenya.
4. To critically analyze how assessments resources impact the attitude of learners towards mathematics in Kenya.
5. To critically analyze the impact of reinforcements on the attitude of learners towards mathematics in Kenya.

### **5. Research Questions**

1. To what extent the monitoring of learners continuous assessments affect their attitude towards mathematics in Kenya?
2. How the quality of continuous assessment affects the learners' attitude towards mathematics in Kenya?
3. How does peer influence impact the students' attitude towards mathematics in Kenya?
4. What are the impacts of assessment resource materials on the attitude of students towards mathematics in Kenya?
5. To what extent, the reinforcements that follow continuous assessments impact the attitude of learners towards mathematics in Kenya?

## **6. Research Methodology**

For this study, qualitative research was used with a critical analysis design. The researchers critically reviewed works by other scholars related to the area of study. This was aimed at giving the researcher informed insights about the problem.

## **7. Significance of the Study**

For improved performance in mathematics, learners need to have a positive attitude. The study found out whether learners acquire negative attitude from their encounter with continuous assessments. The learners may benefit from the study if they will be helped to remain enthusiastic towards the subjects and score higher grades. The teachers may get information on how; continuous assessment can be used to sustain learners' interest in the subjects. Universities and teacher training colleges may use the information to ensure that trainee teachers use assessments to maintain positive attitude. The information may be important for the ministry of education to come up with a policy on continuous assessments. The parents will be informed on how children can be helped to be positive towards mathematics.

## **8. Literature Review**

### **8.1 Continuous Assessments**

Continuous assessments are founded on the Schema theory. Models are formed in the mind which relates what is in memory and new information. What the learner knows forms a foundation for further learning (Mandler, 1980; Rumerthart, 1980). Continuous assessments can be administered to ensure learners have prerequisite knowledge before learning new ideas. Well-developed schemata guide the student as she or he attempts to identify relevant information and select different strategies for solving the problem. (Anderson, 1984; Rumerthart and Norman, 1981). Continuous assessments in mathematics help the students internalize what has been learnt and prepare them to acquire new concepts.

Piaget's learning theory (1969) also gives a foundation of continuous assessments. Piaget believed that individuals must adapt to their environment. The adaptation is through the process of assimilation and accommodation which depends on both physical experience and social interactions. The kind of schemes and schemata that students develop depend on the kinds of experiences they have. Teachers influence these experiences a great deal. They are supposed, to provide, richer, more diversified

assessments for students to develop more elaborate cognitive structures. This may be applied when designing and administering continuous assessments.

## **8.2 Attitude towards Mathematics**

Gagne (1985) Indicated that mentality determines how an individual work towards given phenomena. The poor attitude that learners develop towards mathematics may be due to their encounter with continuous assessment tests. Assignments in mathematics are given on daily basis. The learners' outlook towards these assignments is the same as that towards the subject.

According to Coon (1991) Positive or negative orientations towards objects, people or institutions are influenced by beliefs and emotions. Hence, attitudes summarize past experience and predict or direct future actions.

Continuous assessments are supposed to enhance learning. Learners may develop a negative attitude if they feel that the assessments are not helping them to learn. According to Festinger's theory of cognitive dissonance (1957), attitude change is caused by conflict among beliefs (where two cognitions are inconsistent). When someone is forced to do something they do not want to do, dissonance is created. When learners put in a lot of effort in doing assignments, without improvements in their grades in mathematics, dissonance is experienced leading to poor attitudes. Learners end up performing dismally because of giving up. Students can do well in mathematics if helped to respond positively to negative situations (Johnston, 2013). Teachers and parents need to encourage students to develop resilience towards learning of mathematics.

## **8.3 The Impact of monitoring of Continuous Assessment on the Attitude of Students towards Mathematics**

In Kenya, continuous assessments are used as formative evaluation. They assist the learning process in many aspects. The feedback from continuous assessment gives a diagnosis of how learning is taking place. Feedback should be of a wider scope to enhance effective learning (Salder, 1989). Giving of this feedback has been left at the discretion of individual teachers. This results to a variation to ways in which feedback is given and used by different teachers.

There is a need for institutions to have policies on continuous assessments. Continuous assessment policies giving parents a role to play may make students do assignments on time and generate enthusiasm towards the subject (Ogoye – Ndegwa, Mengich and Abitha 2007). Most teachers are not using continuous assessments. Assignments are not consistently given and feedback used to aid learning. It is

important for schools to have policies on continuous, which may among other things govern; giving daily assignments, Students attempting and completion of assignments, Teachers marking and keeping records of continuous assessments, communicating the feedback to parents, Remediation on areas where objectives of learning were not met and correct use of feedback will build confidence and motivate students.

### **8.5 Impact of the Quality of Continuous Assessment Tests on the Attitude of Learners towards Mathematics**

Effective teachers possess a whole host of evaluation skills that allow them to determine how well students are learning (Glover, Bruning, 1987). The assessments are derived from objectives. The feedback from the assessments informs the teacher on how well the objectives were achieved. According to Bloom et al (1964), the objectives should address cognitive psychomotor and affective domains. Teachers need to widen the scope of assessments.

According to Freedman (1998), continuous assessments other than tests or examinations must include varied assessment tools such as projects, presentation, interviews, observations, homework, seat works, using different forms of assessments will not only enhance learning but also capture the interest of the learners. Most teachers have limited themselves to using homework. Seat works are given for grading at the end of term. Quality assessments meet Blooms taxonomy (1956). If Blooms taxonomy is upheld in coming up with assignments all learners, will experience success and be challenged. This plays a role in their developing a positive attitude towards mathematics.

### **8.5 Impact of Peer Influence towards Assessments on the Attitude towards Mathematics**

Most students are enthusiastic towards mathematics when they join secondary school. They score high grades in first term. The marks keep on decreasing for most of them which leads to poor performance at KCSE level. Most of these children are at the adolescent stage where peer influence is high. Students attain high grades when they assist each other in doing assignments (Azmitia and cooper, 2001) positive peer pressure can result to students encouraging each other towards continuous assessments and consequently have interest in mathematics.

The power of positive peer pressure can be harnessed by encouraging students to some assignments in groups (Cornol 2000; Paris, Yambor and Packard 1998). Some schools record good results in mathematics. In such a school, a culture has been established in that they maintain a positive attitude towards mathematics. Peer

pressure has been harnessed for a positive course. Bandura (1986) has argued that children imitate. He suggests that they take on the standards of behavior and personal characteristics of people they admire. Teachers need to guide new learners and encourage them to only take on positive behavior from older students. Students who have a higher ability in mathematics can assist others through group-work.

### **8.6 Impact of Assessment Resource Materials on the Attitude towards Mathematics**

Resources materials at the disposal of both the teacher and learner have a bearing on the outcome of teaching and learning. According to Collopy (2003), resource materials are central in the learning process. The kind of resources which a teacher and learner can access determines the activities and experiences when learning.

In most Kenyan schools, written learning materials and especially textbooks are used. A text book is used as a reference and source of assignments (Howson, 1995). The teacher source the content from the textbook, give assignments from exercise in the book and that learner will not only get the assignments from the book but also refer while answering. Teachers may over depend on the textbook at the detriment of meaningful learning. The questions in the textbook may not address learners' individual differences. The text book direct most of the teachers decision about the pedagogy (Robitaille and Travers 1992). When the assignments are not tailored to ensure that the needs of learners of different abilities are catered for, they may become a source of discouragement. Most teachers give exercise without adjusting.

### **8.7 Impact of Reinforcements on the Attitude of Learners towards Mathematics**

Reinforcing stimuli are that when applied to behavior, strengthen them. That is, they increase the probability of the behavior occurrence in specific future situations (Skinner 1938). The feedback from continuous assessment is important to sustain learners' interest. The results should be used to reward the learners. The continuous assessment with manageable tasks encourages learners. Naturally, learners will have a feeling of success on doing well in assignments. Rodgers (1983) argued that all students should have the opportunity to success in the classroom. The teacher should plan activities in continuous assessment to capture all learners' interests. Appropriate reinforcement needs to be given after the feedback of continuous assessment so as not to result to development of poor attitude towards mathematics. Students who continually perform poorly need encouragement lest they lose hope in the subject.

Pupils are often punished when they do not complete assignment, with negative implications that may even lead to school dropout or push out (Ogoye, Ndegwa, Mengich and Abidha (2007). The failure in doing well may be due to the learner not

grasping concepts. Instead of punishing, teachers need to find out why the assignments are not done and take remedial measures. Mathematics concepts develop from the simple to complex. What is learnt earlier forms a foundation for subsequent learning. Learners need to be given immediate feedback followed by appropriate reinforcements.

## 9. Conclusion

The dynamics which go with continuous assessment in mathematics lead to the learners developing a negative attitude. In most schools, monitoring systems are not in place to ensure that continuous assessments are meeting their goals. The most frequently used assessments are home-works which are lifted from textbooks, thus not having a good distribution of different levels of difficulties and all domains of knowledge. The feedbacks from the assessments are not used well to enhance better learning. Peer pressure and culture of schools have a bearing on the attitudes of students towards mathematics in any school.

## 10. Recommendations

The researchers recommended that:

1. Schools should come up with assessments policies to govern monitoring of continuous assessments;
2. Teachers need to be in service on construction of continuous assessment and their use;
3. The schools need to have a variety of learning materials other than textbooks;
4. Schools need to nurture a positive culture towards mathematics.

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