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The Role of Continuous Assessment Learning Activities (CALA) in Enhancing Mathematics Competency and Proficiency in Secondary School Learners

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Abstract

This paper examines the significance and contribution of CALA to the mathematics knowledge of students. It focuses on the instruments and methods used in CALA to teach mathematics effectively in Zimbabwe. Learners' failure to implement what they learn in mathematics has been worrisome to the Ministry of Education whose focus is to promote industrialisation through effective teaching and learning of STEM subjects. It is believed that most learners memorise mathematics with little understanding in order to pass an examination. Inappropriate and ill-suited assessment methods of mathematics are regarded as the principal causes of this rote learning approach by learners. The educational policy makers came up with the concept of CALA, which was effected in 2021, to all levels of education in Zimbabwe. According to the curriculum framework, learners are expected to demonstrate their knowledge of mathematics through CALA. However, whilst the intended goal of CALA is prudent, the concern is whether teachers are knowledgeable about how this model of assessment can be implemented effectively. Ten secondary school mathematics teachers were interviewed to examine their views and practices in the classroom implementation of the CALA component. In this study, the findings established that the incorporation of the component in the teaching and learning of mathematics has come with limited benefits that were marred by teachers' knowledge deficiency to operationalise CALA. This study recommends thorough support and developmental programmes which can equip teachers with the appropriate skills to implement CALA.

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INTRODUCTION

Conceptualisation of mathematics content has been continuously disappointing in the Zimbabwean schools and the world over. This has been revealed by learners' failure to operationalise and implement what they learnt. According to Meshack (2013), evidence has shown that learners have problems in comprehending and interlinking concepts in mathematics. In addition, the performance of learners globally has remained low in mathematics. Various attempts have been made to improve learners' performance in mathematics, but these have been unsuccessful in addressing their poor achievements in the subject

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at secondary school level (Meshack, 2013). The poor performance in mathematics by learners in Zimbabwe, for example, has seen an increasing national concern over the past several years (Kusure & Basira, 2012). However, the problems causing this underperformance in mathematics remain unsolved as the solutions to this underachievement in the subject is still elusive. The major causes of this underperformance in mathematics have been diagnosed as inappropriate pedagogical strategies of teaching and ill-suited assessment methods of mathematics based on a content-based curriculum (Zimbabwe Curriculum Framework, 2015-2022). Hancock (2007, p.221) avers that assessment for learning could "simplify the meaning of complicated learning targets; evaluate learners' capacity to take action; establish the extent to which learners can integrate skills, abilities and knowledge; permit teachers to examine the thought processes learners employ and the products they produce; as well as be consistent with contemporary theories of learning". In the same vein, Chytry and Kubiatko (2021) emphasise that school assessment is considered as a deciding factor for learners' success.

Schulman (1996) asserts that the assessment of mathematics learning remained virtually unchanged throughout most of the last half century. In addition, Schulman (1996) contends that most classroom assessments were limited to summative assessment. According to the Association of Teachers of Mathematics (ATM, 2007), the current forms of summative assessment are condemned because they fail to provide a guide that is reliable for the understanding of mathematics learners or capable of applying and using with confidence. It is a strongly felt that the current summative tests fail to assess the full range of skills and knowledge that are supposed to be part of mathematics literacy and consequently neglect to assess skills that cannot be readily tested. In their study, the ATM (2007) established that preparation for examinations and tests results in learners concentrating on those aspects of mathematics that are tested and this adversely affect learners' attitude to the subject. This is because there is tremendous pressure to cover the whole syllabus at the expense of taking more time to comprehend the basic but important concepts. The pressure to achieve better examination results leads to thinly covering all topics in the syllabus with little grasp of concepts. Such an approach is detrimental to developing a genuine comprehension of concepts. In addition, students may fail to confidently employ mathematical ideas in a variety of contexts in later in their studies and even beyond school as well as college. This is because most learners may memorise mathematics with little understanding in order to pass an examination.

According to Marchetti (2021), some of the best mathematics learners do not have a full grasp of applying mathematics in everyday contexts. Such students can use formulas, follow steps to solve algorithms, pass tests with high scores, but are ignorant of what to do in a real-life situation given a context of using related content to give a solution to a word problem. Unsuitable assessment strategies were considered as the main reasons for this problem. Due to these concerns, the Zimbabwean policy makers raised the following questions: Would one short examination in mathematics actually assess adequately what a learner has learnt over a period of a year? Does the result in mathematics after writing a 2-3 hour paper a measurement of mathematical proficiency in the student? Is the examination grade a measure of understanding mathematics in the learner? In response to these

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http://ejournal.umm.ac.id/index.php/MEJ

recurring questions and in a desire to get students interested and actively involved in continuous learning, the educational policy makers in Zimbabwe came up with the concept of CALA which was effected to all levels of education in 2021. Initially, when a new national curriculum framework was introduced, CALA was meant to be implemented along with it from 2015 to 2022. However, the Ministry of Primary and Secondary Education (MoPSE) later announced that CALA was now a permanent component of the national education model. The CALA component therefore contributes to a learner's assessment at grade 7, form 4 and upper 6 final examinations (New Curriculum Framework Zimbabwe, 2015-2022).

According to the policy makers, CALA is any educational activity that demands students to demonstrate and perform their understanding, proficiency and knowledge of any subject they are learning. CALA is meant to produce tangible products (prototypes) that serve as evidence of learning. Dambudzo (2015) concurs with such a view and maintains that education that is only confined to the classroom and detached from the environment is unsustainable. In addition, Dambudzo (2015) calls this education irrelevant as it fails to equip students with work ethics and basic skills. However, whilst the intended goal of CALA is commendable, the concern is whether teachers are knowledgeable about how this concept is applied. Most educators have questioned the approaches and methods used to implement CALA. Some have been concerned about the time period between planning and implementation of CALA. In light of these divergent views, the authors sought to interrogate the efficacy of CALA in learning mathematics. Hence the following questions guide the study: How do mathematics teachers understand CALA? What do mathematics teachers actually do in the classroom to enforce CALA? How do mathematics teachers use CALA to enhance mathematical proficiency among learners? This paper therefore examines the significance and contribution of CALA to the mathematical knowledge of learners focusing on the instruments and methods used in the component to teach mathematics effectively in Zimbabwe.

Conceptual Analysis of Assessment

Generally, assessment comprises all activities carried out by teachers and learners to acquire information which can be utilised to modify teaching and learning. It also refers to as a report on learners' progress and achievement (Oyinloye & Imenda, 2019). The issue of assessment has taken a significant and central role in research, hence its importance in the learning of mathematics cannot be overstated, (Camargo, 2015). The National Council of Teachers of Mathematics (NCTM, 1995) assessment standards for mathematics define assessment as the gathering of evidence and information about the learners' knowledge. This knowledge includes learners' ability to apply mathematical concepts and their disposition towards mathematics. According to Camargo (2015), 'assessment practices' is not only about techniques or procedures, but has a broader meaning involving assessment of daily schoolwork such as tests, homework, classwork or observations of students' responses in class, hence the name continuous assessment. Duckett (2005) avers that assessment for learning should be continuous so that it improves learners' classroom practices, contributes to the personalised learning whereby learners are empowered to be actively involved in their own learning, and that it develops the confidence of learners to undertake peer and/or self-assessment.

ISSN : 2579-5724
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http://ejournal.umm.ac.id/index.php/MEJ

The way teachers assess their learners' work can therefore impact on the learners' understanding of mathematics.

The NCTM (1995) described the assessment processes they thought was necessary for mathematics teachers to take into consideration during assessment of their learners' work. According to the NCTM (1995), there are 4 interrelated phases in the process of assessment of students' work. The four phases in the process of assessment are, first, plan the assessment; second, gather evidence; third, interpret the evidence; and fourth, use the results. These phases operate in a cyclic form as it is given in figure 1 below.

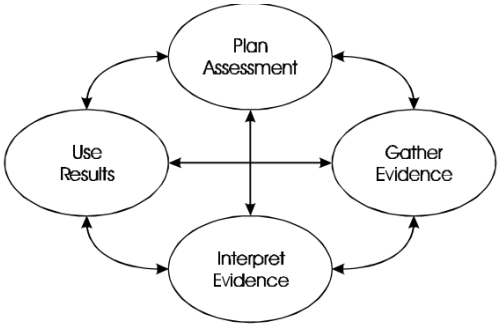

Figure 1: Assessment processes (NCTM,1995)

In each phase the assessment process is characterized by actions and decisions that happen within that phase. The 'plan assessment' phase, for example, focuses mainly on the purpose of assessment and the methods used to gather evidence of performance. The 'Gather evidence' phase looks at how the activities and tasks are created or selected, and how the learners can be engaged in those activities. The 'Interpretation of the evidence' phase concerns how the quality of the evidence is determined. Finally, the 'use results' phase is about how the results are reported and the actions to be taken based on the inferences made. This implies that the key to a successful assessment strategy is planning for it. Hence, the expectation is that CALA can be successful only if it treads on the same route.

Impact of Assessment on School Mathematics

According to Oyinloye and Imenda (2019), assessment has been pivotal to teaching and learning, hence there is little doubt among educational practitioners about the significance of CALA as a basic condition for meaningful learning. Whilst it is fundamental that the aspects of assessment are adhered to, the issue of assessment being divorced from learning is mentioned by Kanjee and Moloi (2014) and Motsamai (2017) who contend that most schools in South Africa do not actually focus on promoting on-going classroom learning. Most educational practitioners thus remain stuck in the theoretical aspect of planning rather than implementation, which may result in a blind type of curriculum. In the learning and teaching of mathematics, assessment is critical element and one that demands teachers' careful consideration. According to Niss (1993), the assessment criterion in most classrooms is still based on a behaviourist approach whereby discrete skills and facts are tested and the ranking and grading are the principal goals of assessment. Kilpatrick (1993) contends that assessment should do more than measuring an individual's mind and then assign a mental treatment. Students should be able to employ mathematical concepts in diverse social contexts and teachers ought to

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http://ejournal.umm.ac.id/index.php/MEJ

create instructions in mathematics that help the learner to use more rewardingly, responsibly and even better. For teachers and schools to be able to do that, they are required to transcend the myopic visions of assessment as engineering, the school as a machine, and the mind as a hierarchy (Kilpatrick, 1993, p. 44). In the same vein, Chigonga (2020) underscores that assessment must not be restricted to pencil and paper but could be a task, a project or an observation to demonstrate that a learner has grasped the concept, and can therefore soundly make connections with other interrelated concepts. Learning is therefore worthwhile when students comprehend the correlation between what they have learned and other knowledge; hence, creating or generating craft knowledge.

The CALA programme heeds the demands of the craft knowledge as described by Cooper and McIntyre (1998). It should be highlighted that craft knowledge is, to a great extent, established through experience, and is grounded on the collaboration between learners and their teachers. In consistency with this view, Cooper and McIntyre (1998) further assert that craft knowledge is solidly rooted in learners' practical experiences that emanate from their use of senses to generate empirical knowledge. CALA is also rooted in learners' experiences because it is related to the everyday practices of learners and that it limns the knowledge that emerges from what learners actually do. As a result, craft knowledge is generated from CALA. In essence, CALA is practical in nature and not theoretical. The CALA definition therefore heeds Bennett's (2011) assertion that continuous assessment is meant to enhance learning and promote problem-solving skills in learners. Mathematics is a practical subject and its practical nature should be realised through authentic problem-solving approaches such as project-based approaches. Mathematics learners therefore develop this type of knowledge by using practical problem-solving approaches (Cooper & McIntyre, 1998). This implies that knowledge is gained when learners are engaged in hands-on activities, which justifies the application of CALA in a mathematics classroom.

According to Muzawazi (2021), the Chief Director (CD) (Secondary and Non-Formal Education) in the Ministry of Primary and Secondary Education Zimbabwe, CALA tests the candidates' continuous behavioural and physically skills (coursework), and this contributes 30% to their final assessment marks. The knowledge or summative skills that candidates are assessed during their examinations contribute 70% to the final grade. Muzawazi (2021) submits that CALA examines three domains in the learner, that is, the cognitive domain (knowledge domain), the affective and the psycho-motor domains. This implies that CALA tests the learners' knowledge, physical skills (Simpson, 1972) as well as emotional skills respectively. Thus, the CALA model generally underscores the assessment of values, skills, trends, abilities and knowledge to determine the performance of learners.

The examination of other domains demonstrates the fact that CALA is extending the education system further into a practical context where assessment ought to be authentic and holistic because the potential of learners is not limited to their retention capability or what they keep in the head, but involves other skills too. In mathematics, the link between theory and practice may take a further step towards mathematical proficiency when learners become aware that "they live with mathematics and live in mathematics" (Makamure, 2016). If there is a concept of

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relevance in mathematics, the subject then ceases to be unfamiliar or odd. Learners are therefore likely to have the drive to better understand and learn. Keller (1987) submits that, in a learning activity, relevance can be developed when classroom instruction is related to concrete examples from a learner's experience. Once learners realise the relevance, they may therefore set their goals. It should be noted that goals that are self-imposed give learners' satisfaction and confidence and these can be a great source of motivation (Keller, 1987), which can also be stimulated by the use of CALA. A real life example in which mathematics is necessary is whereby a learner is involved in home improvement and try to figure out the total amount of materials needed for the project. For example, it could be the amount of concrete required for a slab; measuring accurately the various angles, widths and lengths; estimating the cost of the project; and all these mathematical daily problems resonate with the attributes of CALA.

Theoretical Framework

This study is underpinned by the realistic mathematics education (RME) framework. The RME provides one possibility for equipping students with problem-solving skills because it is grounded on the concept of mathematics as a human activity (Freudenthal, 1973). In addition, RME is anchored in the realistic correlations of mathematical ideas (Bu, Spector & Haciomeroglu, 2011). According to Clements and Sarama (2013), RME involves the development of mathematical models that allow students to relate problems to contexts, to give solutions to problems as well as interpreting mathematical solutions based on their contexts. Thus, RME propels critical and logical thinking as well creativity (Ruseffendi, 1990). Based on these facts, it is fundamental for teachers using CALA to understand and implement RME principles in their teaching. Barnes (2005) recommends that the objective of teaching mathematics is to equip learners with skills, knowledge and strategies to employ the subject to solve the challenges encountered in daily lives. If the teaching of mathematics fails to bequeath these skills to learners, then learners would have been denied access to mathematical literacy (Makamure, 2021). This is because most evidence of failures by learners doing mathematics is, to a great extent, attributed to teachers' instructional strategies and or teaching-learning environments (Barnes, 2005). The authoritarian type of teaching and assessing mathematics, according to Barnes (2005), has failed to bolster effective mathematics learning in high schools. Teachers should therefore be privy to the processes of assisting learners in CALA Education to solve the contextual issues based on RME. Such attributes could enrich the progress in the teaching of skills that improve mathematical literacy among learners and teachers.

RESEARCH METHOD

This research employed a qualitative approach in the collection and analysis of data from the 10 randomly selected mathematics secondary school teachers. The authors conducted structured interviews to examine and illuminate the views, experiences and practices of teachers assisting their mathematics students to implement the CALA component. Furthermore, the authors also thoroughly went through the curriculum framework for CALA implementation to explore the details given in the document for the curriculum implementers. Results of the interviews

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http://ejournal.umm.ac.id/index.php/MEJ

with the mathematics teachers were examined and the data were processed in response to the research questions of this study.

The teachers' responses to the interviews were juxtaposed against the requirements and goals of the CALA model in order to answer the research questions of the study. Some repetitive reflections of the interviewed teachers were not written separately to avoid monotone. Each theme was discussed using some representative excerpts from the participants. The data collected revealed three themes, namely, teachers' knowledge about CALA, learning activities involving CALA and challenges and opportunities of CALA. Participants in this study were identified by codes to ensure confidentiality. The study was conducted in Zimbabwe where the CALA programme was initiated. The interviews were audio recorded to ensure the trustworthiness and credibility of the results. Textual data was used to analyse the data collected.

RESULTS AND DISCUSSION

Knowledge about CALA

Nearly all the participants except two, claimed that they understood CALA and were using CALA in their teaching. Most of them could articulate the purpose and benefits of CALA as given in the Curriculum framework. However, 50% of the participants did not like CALA for one reason or the other. The study established that the participants' interpretation of CALA were varied. The following are example definitions of CALA as given by the respondents:

Resp 1 : *CALA is a process of continuously assessing our learners to identify other skills which are not only academic.*

Although Resp 1 did not mention the other skills which are not academic, it seems he is pointing at the social side of the students' life other than solving mathematical problems in the classroom. This means he is referring to the application of mathematics in students' daily life situations by being able to solve social problems mathematically (mathematising situations).

Resp 2 : *CALA involves hands on application on the subject content.*

Respondent 2 is mainly concerned about the practical part of CALA.

Resp 3 : *CALA is a learning activity that demands students to demonstrate their understanding of the subject.*

Resp 4 : *CALA is meant to assess learners' ability to solve problems.*

Although respondent 4 did not mention the problems to be solved (whether mathematical or social) all she knows is that CALA develops the skill to solve problems.

Resp 5 : *It is part of continuous assessment, where learners are given an activity to do in form of a practical activity and the task is on the mathematics content you teach.*

In summary, respondent 5 raised the following points: In CALA students are given a CALA activity to do by the teacher; the activity is practical; the activity is a mathematics one and for him, this is what constitutes CALA.

Resp 6 : *CALA is meant to show students that mathematics is not complicated, and that they can actually earn a living out of mathematics. For example, when preparing food at home, be it cooking* ***sadza****, in the process of rationing the mealie-*

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http://ejournal.umm.ac.id/index.php/MEJ

meal and water to come out with this product, it is part of CALA.

Respondent 6 is talking about the application of mathematics in students' daily life activities. However, he has a different view about the purpose of CALA as a way to show students that mathematics is not difficult.

By and large, in their understanding of CALA, one common issue being raised by all the participants is the concept of practicality or hands on practice during learning. However, the participants seem to overlook the issue of continuity. From the definitions, any activity that involves practice, even though it is once off, is still a CALA activity.

Learning Activities Involving CALA

After being asked to depict the activities done in the classroom as part of CALA, the respondents in general articulated the purpose of CALA in conjunction with what they were teaching in the classroom. The participants explained that CALA makes learners understand the content better by applying and relating the concepts to real life situations, hence the activities were narrated. However, the teachers' knowledge of CALA was demonstrated differently through the activities performed or given to the students in the classroom. Different teachers had different views about CALA as exhibited by what they do in the classroom. For example, after being asked to explain the activities done by the learners as CALA activities, here is what some of them said:

Resp 3 : *I ask students to calculate the number of cement bags needed for a given building project.*

Resp 7 : *Learners measure a pathway using a ruler and then use scale to show the scale drawing of the pathway.*

Resp 6 : *I find a topic for the students. Students are actually supposed to find their own topics but if we allow them it is quite hectic and we are overloaded with work as teachers. So, I give them one uniform CALA. In mathematics, so far I have given them one CALA of area, like in tiling. So, I asked them to measure the tile and the room and they have to find how many tiles are required for the room. This can be done in one day and I record. I have one CALA for all the students. All the learners do is to observe or participate in an activity and record the results individually. The mark acquired contributes towards CALA. The activities are also determined by the environment. For us here in the rural areas, our exposure to CALA activities is limited.*

When Resp 6 was asked whether the activities were cumulative in order to ensure continuity and develop a mathematical concept, he responded that continuity was quite difficult. He quipped that, "As long as I manage to submit a CALA activity, it's enough".

Resp 8 also reiterated : *Personally, I can set aside 5 days to cover or finish all CALAS. It doesn't take me long.*

ISSN : 2579-5724
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http://ejournal.umm.ac.id/index.php/MEJ

Resp 5 : *I asked them to gather data on shoe sizes. Suppose a non-governmental organisation wishes to donate shoes and they require the shoe sizes. The learners will then do a survey of collecting shoe sizes from the beneficiaries. From the data collected, they can plot graphs, calculate the mean, mode, median of the data and present it to the responsible authorities in summary form and this can take about 3 to 4 days.*

Whilst all the participants were trying to connect the learners with their environment/society, the concepts learnt were not cumulative to enhance deep understanding of the topics. Most of the activities were once off.

The participants also indicated that the examination board (ZIMSEC) sometimes demand sample files with CALA activities. However, they explained that the random sampling is not done quite often and does not involve all the schools. The ZIMSEC belief is that schools are not privy to how the samples are picked hence the schools should always be alert. However, once they grasp the system, there is a likelihood that some teachers falsify marks because they are already complaining about too much work load. Ultimately, the quality of learning could be compromised.

Challenges

After being asked if there were any challenges experienced in implementing CALA, the participants alluded to too much work load on both the teachers and learners (5 CALAS per subject). This implies that a student doing 8 subjects is expected to do 40 projects or 40 activities to demonstrate CALA. Additionally, a teacher teaching an average class of 40 students in high school, marks 40 x 5 activities = 200 projects. In primary schools, teachers teach at least 5 subjects, implying that a teacher teaching a class of 40 students would assess 5 CALAS per subject per student x 5 subjects x 40 students = 1000 activities. On average, according to the participants, the classes are big and are 1:50 on average (one teacher to 50 students). This means teachers can assess above 1000 CALAs per year in addition to daily exercises and homework. This load is likely to impact on the quality of assessment, and can induce cheating among both students and teachers, which may result in dubious and unauthentic results. This kind of load actually stifles the purpose and significance of CALA because everything is done without depth.

The participating teachers also raised the issue of resources and lack of training. Their training was very short and some did not even get training. This is evidenced by the varied ways teachers were implementing CALA in their classrooms.

The other major challenge was on external candidates. Zimbabwe has a system where non-formal students (those that are not in the formal stream) can write their examinations in formal schools. They only come on the day of examinations to write their papers. After being asked how external candidates are handled in terms of CALA, one of the participants explained that the candidates normally approach the subject teachers at the exam centre to sign and formalise the CALA activities so that they are accepted by ZIMSEC. However, no one monitors how the

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http://ejournal.umm.ac.id/index.php/MEJ

activities were developed. The activities are considered valid as long as they bear the school stamp. Here is what Resp 7 expressed:

> *… yes, our school is a centre for exams, we also have external candidates – those that did not learn here. All they do is to bring their project files to be assessed by the subject teacher who then allocates a mark, signs and stamps in order to formalise it*. The entire process therefore leaves a lot to be desired.

Interviews with teachers showed that both teachers and students were suffering in the hands of CALA. A teacher at one school admitted asking learners to pay a 'reasonable' fee to help them with their CALA activities. Here is what Resp 10 said after being asked about his views about CALA:

> *It is actually a challenge to adapt to this new normal of CALA. However, despite too much load of supervising more than 100 projects, it is the only means for one to get extra money, and I am convinced most of us are charging students a few dollars to assist them do their CALA activities. The students really appreciate it and are willing to pay; …. out of desperation, parents also approach us to assist their children and are willing to pay….*

By and large, according to the teachers interviewed, asking learners to pay for education that should be provided within the framework of the public system, tended to take the form of a daily ritual of small remunerations to teachers.

Opportunities

Despite the challenges experienced by teachers in the implementation of CALA, this model has the potential to pave significant opportunities to both teachers and students in teaching and learning mathematics. By responding to items 8, 9, 15, 16, 17, 19, and 20, some teachers revealed that the model developed motivation in the learners to study mathematics because of their personal involvement in practical activities. For example, Resp 5 explained,

> *….. I like CALA, yes because you see the children are excited when they are doing their own things, especially if you do not interfere a lot. Yah, it's a slow process that sometimes you are afraid we may fail to cover the syllabus, but why rushing? We can't rush when they don't understand. So CALA is good, students understand mathematics better."*

When asked if he was seeing any changes in the learners' performance after engaging them in CALA activities, Resp 5 said,

> *The changes in performance are difficult to see. They are still doing the same, but eeh, you see they now like the subject, you know with mathematics. Motivation, motivation is the way forward……*

Resp 5 raised two benefits associated with the use of CALA. First, motivation for the learners and second, better understanding of the subject. However, Resp 5 is claiming better understanding of mathematics concepts but at the same time he is confessing that there is no change in performance.

When responding to item 19, the participants did not say much about what CALA has facilitated in their teaching but what problems it has brought. However,

ISSN : 2579-5724
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http://ejournal.umm.ac.id/index.php/MEJ

those that responded positively towards CALA were more inclined to the social aspects than the intellectual aspect. Resp 8 from a rural school reiterated;

> *….with CALA activities, students do not become idle, and as a result they are better disciplined in terms of behaviour. They are always on their toes to refine their projects for examination. The learners also acquire the skill to own and manage their own work with little supervision.*

On responding to item 8, Resp 2 and Resp 4 contend that they like the CALA model because students tend to realise the relevance of mathematics in their lives. They concurred that because learners are engaged in hands on activities, there are skills that are instilled in them, which can sustain them throughout their lives. However, these teachers expressed their disgruntlements against a lack of resources to implement CALA. Their concern was that the meagre and depleted resources in their schools had become a stumbling block to the success of CALA.

In fact, the general view of the participants was that whilst the theoretical goals of CALA are quite good, the resources, lack of training and sometimes resistance from the teachers have barred the achievement of CALA goals.

Discussion

The purpose of this study was to explore the effectiveness of CALA in learning mathematics. Whilst the intended goal of CALA is brilliant, the concern is that teachers seem not to be knowledgeable about how this model is applied to promote mathematical proficiency. By and large, the study established that, although in theory the CALA component is a good learning framework, its addition to the school examinations without training of teachers was unfortunately haphazard as their knowledge about the model is thin. The study revealed that teachers lack the capacity to competently supervise and evaluate CALA projects. Most educators have questioned the approaches and methods used to implement CALA. Some have been concerned about the time period between planning and implementation of CALA. The data collected also revealed the various issues.

First, CALA is a hands on activity done by learners. However, CALA is not cumulatively continuous on a particular topic which contradicts the ideal purpose of CALA. All the activities seemed to be short period activities which could be done in a day or two. Hence, the difference between CALA and a normal classroom activity is blurred. There was clear evidence of lack of knowledge of CALA among the implementers. According to Chisara et al. (2019), continuous assessment should be cumulative in the sense that previous evaluations and decisions on an individual/project should be put into consideration in subsequent decisions. Institutions or individuals who attempt to expedite continuous assessment may change the formative nature of continuous assessment into summative, thus bringing all its benefits to nought (Popkova, 2018). Ajinomoh and Eze (2017) also buttress this idea when they explicitly spelt out that continuous assessment should be progressive and cumulative; hence, showing the rate of development of a learner over a period of time. In this way, and based on the project, it becomes easy to tell whether the learner is improving or not.

Second, the CALA activities are designed on a variety of learning areas/topics per learner and are too many, hence, no depth study or no deep

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knowledge of a particular topic is generated. The teachers therefore end up doing superficial work activities in order to meet the demands of the ministry and the examination board but the process compromises quality. As it is currently believed, most teachers teach to cover the syllabus in order to produce results (ATM, 2007). There is therefore a lot of pressure to cover the whole syllabus at the expense of spending time to grasp the most important but basic concepts (ATM, 2007). Neglecting long term projects-based assessment in CALA stifles understanding of mathematical concepts in general because learners are not inspired to study areas outside the intended examination. In this case, schools tend to remain examination factories because learners are denied the opportunities to be critical thinkers, problem solvers, researchers and the ability to self-evaluate themselves, which are skills recommended for lifelong learning (Aldabbus, 2018). Aldabbus emphasised that research-based learning is not just limited to providing learners with content knowledge, but gives them the opportunity to further develop their psychomotor and social skills.

Third, the study found that the teachers choose activities for learners and; hence, denied them an opportunity to be autonomous. All learners did the same things, had uniform activities except for the methodology to do the activities, which were slightly different. This demonstrates that learners were provided with fewer opportunities to explore the subject beyond the rather restrictive curriculum. The system of choosing topics for the learners encouraged an attitude in the learner that mathematics is a dull and lifeless subject. Denying learners an opportunity to explore further could therefore prohibit mathematical literacy. Providing them with more freedom to explore could turn them into more motivated and thoughtful mathematicians (ATM, 2007). According to Sarte (1946), no two learners are alike. Learners differ in personality, background, interests and therefore need to be treated as individuals and allowed to take a positive role in shaping their education and their lives. Lawless (2005) concurs that there are no universal standards for human life, people are what they do. Therefore, giving them the same activities may suppress individual interests. The purpose of CALA on paper is to foster unique qualities in learners. Individual choices must therefore be respected to enhance perfectibility and interest (Curtis, 1968), hence teachers must cater for individual differences among learners by allowing them to choose their own activities for CALA.

As for external candidates, CALA is just a ritual in order to get a mark or grade at the end of the year. Kilpatrick (1993) hence underscored that schools and teachers should change their "focus of assessment from summative assessment whereby a learner is assessed to determine an overall measure of achievement, to the more supportive role of formative assessment in which the achievements of a learner result in action plans for both the learner and teacher, in the pursuit of further learning". So, allocation of a mark to a finished product is likely to instigate poor quality of work and consequently the grade may become questionable.

The other finding was that the examination board, ZIMSEC, and the National Curriculum Framework (2015-2022) do not have a standard assessment criteria or checklist or handbook to clearly guide the CALA implementers or examiners. A properly designed handbook can support a productive educational culture and ease concerns of teachers by creating clear expectations and standards to be followed

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(Stronge et al., 2004). This assertion can be construed to imply that a proper guide can provide an in-depth understanding of the aspects of CALA that yield gains, uniformity and coherence in student learning.

The study also established that teachers are just relabelling the old system of teaching to be CALA, hence CALA becomes a ritual because of their limited knowledge about it. Because the teachers do not really understand it, this has caused compliance among teachers, they stick to their usual businesses and rename what they already have to suit the new demands of the ministry. Hence, *The Newsday* (2017) reported that a former minister of education commented that the new curriculum was likely to throw the sector into disarray as it was introduced without adequate consultation with educators. The Amalgamated Rural Teachers Union of Zimbabwe (ARTUZ) president also explicated that monitoring and evaluation of CALA should take place at every stage. Regular evaluation could help to clear doubt and enhance confidence in both teachers and learners.

This study also ascertained that low remuneration was a frequently cited reason teachers gave for 'forcing' their own school learners to pay facilitation fees for CALA activities. The practice of corrupt private tutoring can have a range of detrimental effects on all actors involved in the education system (Hammond, 2018). In this case, schools request students and families to pay teachers for 'supplementary' lessons for CALA. Such corrupt practices introduced in schools may constitute some destructive effects of the new curriculum hence impacting negatively on the entire education system. Due to these corrupt practices, the ARTUZ president (2021) spelt out that the CALA monitoring and evaluation procedure could be falsified to make it appear as if it is working. However, the entire process will be simply a form of assigning marks to half-baked learners. The grades awarded would therefore fail to reflect the true aptitude level of the learner. Since the study established that teachers are struggling to embrace CALA as a new learning model, the MoPSE should re-structure its implementation. To curb the corruption associated with CALA, the component should have a budget to support it strongly. Hence the ARTUZ president (2021) asserted that the implementation of CALA requires "massive investments in capacity building of teachers, investment in raw materials for its implementation, and competitive remuneration of teachers to enhance their morale and curb corruption".

As a result of all this, the study can comfortably conclude that, if no appropriate and immediate measures are taken towards improving CALA implementation, it can die in the same shawls of the other noble innovations of curriculum done in the past. These include education with production (EWP) and ZimASSET

CONCLUSION

In conclusion, the idea of CALA is a very valuable model and, with training and experience, teachers can teach the component effectively to raise standards in mathematics and thereby encourage the full range of attributes of good mathematical learning. The incorporation of the CALA component to the teaching and learning of mathematics can have many benefits that include improvement in mathematics content performance, creativity, enhancement of problem solving skills, learners' self-esteem and self-reliance. However, this study recommends

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thorough support and developmental programmes which can equip teachers with the appropriate skills to implement CALA. If CALA is to support meaningful learning in mathematics, in line with the demands of the MoPSE in Zimbabwe, there is a need to address the challenges faced by the mathematics teacher. With more developmental programs for teachers in place, CALA may boost mathematical conceptualisation, competency and proficiency for mathematics learners at all levels of education. According to Dambudzo (2015), meaningful assessment should involve learning activities that require a learner to demonstrate and perform one's understanding, knowledge of and proficiency in any subject being taught in the classroom. Schulman (1996) also recommended an assessment system that focuses on learning outcomes and involves students actively in the learning process. Such an assessment process encourages learners to demonstrate their knowledge of the mathematical concepts learned to ensure proficiency and literacy. This way, the positive impact of CALA activities on learners' performance in mathematics can be realised.

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