



**ORDINARY LEVEL MATHEMATICS IMPLEMENTATION DYNAMICS IN  
GLENVIEW-MUFAKOSE DISTRICT: HARARE, ZIMBABWE.**

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### **Abstract**

*The main purpose of the study was to examine the Ordinary Level Mathematics Curriculum Implementation dynamics looking at the influence of learners' attitudes on poor performance in Mathematics in the Glenview-Mufakose district of Harare in Zimbabwe. It was underpinned by two theories, the Constructivist theory by Jean Piaget (1896–1980) and the Systems Theory of von Bertalanffy (1930). The conceptual framework guiding this study was Mathematics Curriculum Implementation. This helped the researcher to get a deeper understanding of the contribution of the attitudes of learners to poor performance in Mathematics at “O” Level in the Glenview-Mufakose district in particular and Zimbabwe in general. This study, because of its pragmatic nature, considered both the positivist and post-positivist ontologies. The mixed methods was chosen because no one approach is better than the other and the researcher saw it ideal to mix the qualitative and quantitative paradigms in the present study. The concurrent triangulation design was used where both data which was qualitative and quantitative were collected concurrently in one phase, analysed separately and then compared and combined (Mawarire, 2013). The study sample consisted of twelve school heads, twenty-four parents, forty-eight teachers and ninety “O” Level Mathematics learners who were purposively sampled from twelve secondary schools in the district. The total sample was one hundred and seventy-four respondents. Data collection instruments consisted of questionnaires, interviews, observation guides and documentary analysis. The major finding of the study was that most of the learners in the Glenview-Mufakose district had a negative attitude towards Mathematics and this had negatively influenced the results in the district in question. The study recommended that the schools in the Glenview-Mufakose district in particular and Zimbabwe in general should motivate “O” Level Mathematics learners so that they develop a love for the subject. Another recommendation was that “O” Level Mathematics learners should be refocused on the importance of the subject in everyday life.*

**Keywords:** *Competency Based Curriculum (CBC), Curriculum Development and Technical Services (CDTS), Mathematics Curriculum Implementation (MCI), Official Recontextualising Field (ORF), Pedagogical Content Knowledge (PCK), secondary school, head teachers.*

## 1.0 Background to the study

To empower Zimbabweans for effective citizenry in the 21<sup>st</sup> Century, a great responsibility falls on the O Level Mathematics education curriculum to educate well and to include all citizens. This can only be realised if the Government provides an equal platform for learning in terms of learner motivation. Research findings show that O Level Mathematics Education empowers learners with the most important skills that they need to be productive citizens. Ndunda (2002) pointed out that Mathematics is one of the most important subjects in the school curriculum the world over. Learners' academic performance, especially in Mathematics, is crucial for the development of society (Mushtaq & Khan, 2012). The country's (Zimbabwe) progress is directly linked to learners' performance and in particular O Level Mathematics performance. This means that for a nation to prosper, learners should be exposed to an O Level Mathematics curriculum that enables them to be open-minded and to think logically. Lindahl (2005) supports this by saying that mathematics education plays a significant role in influencing an individual's socio-economic circumstances. The researcher has been in the teaching fraternity for twenty years now and has observed attitudes of learners as an area that needs attention. Many variables come into play as regards the teaching and learning of Mathematics but the primary focus of this study was on the learners' attitude and how they influenced academic performance in O Level Mathematics. This research was meant to discover and analyse the poor performance in O Level Mathematics in the Glenview-Mufakose District of Harare. It looked at the learners' attitudes towards O Level Mathematics and how the teachers taught O Level Mathematics in the district in question. This variable gave the researcher a clear picture of the learners' attitude and its impact on the teaching and learning process in O Level Mathematics in the district.

### *1.1 Statement of the problem*

Notwithstanding the continued pitiable performance in "O" Level Mathematics in Zimbabwe, to the present researchers' knowledge, no study has been carried out in the Glenview-Mufakose District of Harare to analyse the Mathematics Curriculum implementation dynamics with respect to the impact of learners' attitude on their poor performance. In light of this, the study intends to analyse the influence of learners' attitudes on poor performance in "O" Level Mathematics in Glenview-Mufakose district of Harare in Zimbabwe.

### *1.2 Objectives of the study*

The study sought to:

- assess the contribution of learners` attitudes towards poor performance at “O” Level Mathematics,
- examine the impact of learners` negative attitude towards the teaching and learning of Mathematics at “O” Level

### *1.3 Research questions*

- To what extent do learners` attitudes contribute to poor performance in “O” Level Mathematics?
- What is the impact of learners` negative attitude towards the teaching and learning of Mathematics at “O” Level?

## **2.0 Review of Related Literature**

The conceptual framework guiding this study is Mathematics Curriculum Implementation. It drew from the ideas of Barnard and Saunders (1994, p. 231) who argue that “effective Mathematics curriculum implementation entails an application of Philosophy of Education to Mathematics Education and teaching”. This study was guided and underpinned by two theories, the theory of constructivist learning and the Systems Theory. Constructivism is basically a theory based on observation and scientific study about how people learn. System theory, on the other hand, is the transdisciplinary study of the abstract association of happenings, independent of their elements, category, or spatial or temporal scale of being. This was aimed at showcasing how the two theories would be applied simultaneously in the Mathematics education system of Zimbabwe specifically looking at learners` attitude and its impact on poor performance in Glenview-Mufakose district of Harare Province.

## **3.0 Research Methodology**

The main purpose of the study was to analyse the impact of learners` attitude on poor performance in “O” Level Mathematics in the Glenview-Mufakose district of Harare in Zimbabwe.

### **3.1 Research paradigm**

In the context of this study, research paradigms are perspectives of looking at reality and how it is organized. This study followed a mixed methods methodology approach to research because of its pragmatic nature. This was done to better understand the contribution of the

attitude of the learners on poor performance in “O” Level Mathematics in Glenview-Mufakose district of Harare. The use of the two methods provided a better understanding of the research than either approach as a single unit. Johnson & Onwuegbuzie (2004) also argue that the mixed methods approach complements the strengths of a single design, to overcome the weaknesses of that single design and address a question at different levels. This was the reason why the present study was designed to use the two methods that produce qualitative and quantitative data.

### **3.2 The Research Design**

The researcher used the concurrent triangulation design to seek an understanding of the extent to which the attitude of learners impacts on poor performance in “O” Level Mathematics in Glenview-Mufakose district of Harare in Zimbabwe. This was done through triangulating data from multiple methods. The multiple methods were used basing from a pragmatic perspective which incorporates all the two paradigms. The triangulation design, also called convergent design, is described as a design that involves the collection of different but complementary data on the same phenomena (Edmonds & Kennedy, 2013). In this study, both data which was qualitative and quantitative were collected simultaneously in one phase. The data was analysed separately and later on compared and combined. This method was used in this study to confirm, cross-validate or corroborate findings.

### **3.3 Population and Sampling**

Glenview-Mufakose district has thirteen secondary schools. One of these secondary schools is a privately owned school. The researcher purposively sampled the other twelve secondary schools. The twelve secondary schools in the district formed part of the sample. One privately owned secondary school in the district had some reservations and the researcher left it out after consultation with the authorities and concentrated on the remaining twelve secondary schools.

The eligibility criteria in this study were that the participants have to be:

- an “O” Level Mathematics teacher, in possession of a minimum qualification of a diploma in Education Secondary and teaching in the Glenview-Mufakose district in Harare in 2019.
- a secondary school head in the Glenview-Mufakose district in Harare in 2019.
- “O” Level Mathematics learners in Glenview-Mufakose district in Harare in 2019.
- a parent of an “O” Level learner in the Glenview-Mufakose district in Harare in 2019.

### **3.4 Data collection instruments**

Researchers choose which type of instruments to use based on the research questions (Koskei, Tomui & Simiyu, 2015). In this study, the researcher was guided by the research's pragmatic approach and chose two data collection instruments to assist in gathering the data required for data analysis. Interviews and questionnaires were the two research instruments used for collecting quantitative data to answer the research questions of this current study.

### **3.5 Data generation procedures**

Data generation instruments which were used are observations and documentary analysis. Lessons were observed by the researchers using an observation guide developed for this purpose. The researcher also examined records such as learners' exercise books and teachers' social record books in order to triangulate results found. The responses were recorded manually over a period of six calendar months by the researcher before they were analysed.

### **3.6 Data Presentation, Analysis and Interpretation Procedures**

The collected and generated data were presented, analysed and interpreted using a mixed methods approach in which the qualitative and the quantitative paradigms were used. Both data which was qualitative and quantitative were collected simultaneously in one phase, analysed separately and later on compared and combined.

## **4.0 Findings and Discussion**

The objective was to establish to what extent the learners' attitude had an input in the bad performance seen in the district.

According to MoPSE (2015), learners in Zimbabwean schools had unhealthy beliefs about Mathematics especially the examinations given like Grade Seven, O Level and Advanced Level from Zimbabwe Schools Examination Council (ZIMSEC). This might be because of the way these examinations were administered. This unhealthy belief about Mathematics especially O Level Mathematics needs to be addressed as a matter of urgency before it is too late. O Level Learners are supposed to sit for the two and a half hours papers both in paper one and paper two. These five hours would determine their achievement in the subject. This

is done only in five hours without considering other circumstances and variables and the mark the learner gets determines his/her destination career-wise. This would in turn determines the learner's future. If a learner is bereaved or is not feeling well, this may imply failing the subject not because the learners do not know how to work out problems given but because of other circumstances beyond the learners' control like sickness as in this case. Parents normally insist on passing examinations regardless of other variables. If a learner fails the examination, to the parents it means the learner cannot do anything else in life. This is not the case because the learner can still do something else which is valuable even if he fails to make it in school.

A study carried out by Faridah (2004, p. 25) found out that Mathematics learners with a high level of perseverance will not stop trying until they manage to get the answer. This seems to imply that endurance and a good attitude towards the teaching and learning of O Level Mathematics aid the improvement of the pass rates in O Level Mathematics. In line with these sentiments, learners are supposed to soldier on to achieve what they want to achieve, especially in O Level Mathematics. This is only possible if the learner himself has a positive attitude towards O Level Mathematics. Other individuals like teachers and parents acquire the positive attitude through orientation. The findings of this study indicate that most of the learners in the district under review were impatient which led them to poor performance. They were not patient because at home they were told that the subject was very difficult and it needed those individuals who were genius to pass it. They were always told that only those with a high intelligent quotient should take O Level Mathematics. With such teachings, it is very difficult for a learner to develop an attitude that is positive towards the subject. A negative attitude is one variable that causes poor performance, especially in O Level Mathematics.

#### *4.1 Heads' perceptions on contribution of learners' attitudes to learners' performance*

The heads are accounting persons at schools and that being the case it means that they know how the learners feel in terms of all the subjects done at their schools including the O Level Mathematics curriculum. The researcher saw it necessary to solicit their contributions towards the learners' attitudes to O Level Mathematics. These heads are always with these learners during their lesson supervisions and school discipline procedures that means they know how they feel about the O Level Mathematics curriculum. Smith (2011) concurs with Fakude (2012) in South Africa when they posit that lack of commitment; learners' independence in schools and peer influence has a strong negative influence on learners' academic performance in schools.

Most of the school heads (80%) indicated on the questionnaire surveys that the learners had a strong negative attitude towards "O" Level Mathematics which in turn lowers their performance. McCleod (2002) said that attitude towards Mathematics is far much related to Mathematics success in the classroom. This means that there was a serious need for some teachings and orientation to the learners on how importance the subject is in life. All the heads agreed that there was strong need for teachers to give lessons towards the value of the subject in life first before they deliver normal "O" Level Mathematics lessons. To these heads, this negative attitude had a strong negative contribution towards the poor performance witnessed in the district for the five years (2014 to 2018).

#### *4.2 Teachers' perceptions on contribution of learners' attitudes to learners' performance*

The teacher is one person who teaches the learners every day. He is always with the learners from the time they come to school through to the time they leave school. He knows the learner best, hence their ideas about the learners' attitudes towards O Level Mathematics is very crucial. From the questionnaire survey, it came out that those teachers in the Glenview-Mufakose District view learners as having negative attitudes towards the O Level Mathematics. To the teachers, this had a very great influence on the results they produced at



O Level. Having a negative attitude means they did not want the subject at all. This means teachers had difficult times in trying to make these learners learn the subject in question.

One teacher, S5T4 pointed out that:

These learners received a wrong gospel about the subject from their friends and relatives. This on its own is causing a lot of problems and is a cause of the persistent poor performance. I have resorted to extra lessons where I teach them after school hours for a fee to cover up. The fee is not much but it is just an appreciation fee for the service I render to them outside my normal working hours. This proved to be very effective in the past five years I have been teaching at this secondary school. I came and joined this school in 2013 and the pass rate was as low as 2.06%. We are now talking of a mean score which is 10.08%. To me, this is a very big achievement and is a result of the extra effort I put especially outside the working hours. We are striving hard to try and raise the pass rate to say 20% in the next five years.

To this teacher, the learners had a negative attitude and this was the reason why the learners were poorly performing in the district in question. Most of the teachers in the district, as seen from the survey done, had resorted to extra lessons. Extra lessons are lessons offered to the learners after hours and learners would be receiving these lessons for a fee. Those learners who do not afford to pay such an extra fee would not be part of the extra lesson classes. These teachers proceed with the syllabus even during these extra lessons that means if one fails to attend to the extra lessons then the person would find it difficult to catch up with the rest of the learners. In the end, parents are forced by circumstances to pay for their children's extra lessons. This had been the trend for years now but the performance is not changing at all. So the claim made by this teacher to say that performance improves as a result of the extra lessons is not true as witnessed by the results seen in the district. To the researcher, this is done for money and not as a way of trying to improve the pass rate. S5T4 pointed out that

for five years the percentage increased by 8.02% and this teacher considered that to be an achievement. To the researcher, this is a problem because the 10.08% is still very low considering that the teacher had been at the station for five years. The movement in terms of percentage pass rate from 2.06% to 10.08% is an improvement but such an improvement should be done in a year or two. After five years the school could have recorded a percentage pass rate which is closer to 20% average.

From the questionnaire survey, it came out that teachers in Glenview-Mufakose district view learners as having the negative attitudes towards the “O” Level Mathematics. To the teachers, this had a very great influence towards the results they produced at “O” Level. Having a negative attitude means they did not want the subject at all. This means teachers had difficult times in trying to make these learners learn the subject in question. The results of the survey also indicated that most teachers believed that learners view “O” Level Mathematics as meant for people who were born with a calculative mind.

Some of the teachers interviewed pointed out that some learners tend to give up easily especially when the work appear challenging to them. They do not have patience to persist with some of the problem yet “O” Level Mathematics requires patience and persistence (Mawarire and Chirume, 2020).. They need to work on such things which are readily available. Nothing is given openly in life in life. They have weak resolve.

#### *4.3 Learners` perceptions on contribution of learners` attitudes to learners` performance*

From the survey made, the researcher found out that of the ninety learners who formed part of the sample, only thirty-four (37.8%) pointed out that they felt out of place if they spent the whole day without learning “O” Level Mathematics. The other 62.2% revealed that they felt more comfortable spending the whole day without doing “O” Level Mathematics at all. Some of the learners felt “O” Level Mathematics is very interesting and enjoyable. The others disagreed with this sentiment. This at the end leaves the performance of the learners on the poor side as witnessed by the results of Glenview-Mufakose district of Harare.

Peers know each other best (Morgan, 2007). Basing on the ideas of Morgan, the researcher thought that it was wiser to solicit for the learners` perceptions on their attitudes towards the

persistent poor performance as witnessed at O Level Mathematics in the district of the Glenview-Mufakose. Their views about their peers and how they felt about the subject were very crucial in this research. It is from the learners themselves that the best ideas can be found about how they felt towards the teaching and learning of O Level Mathematics.

#### *4.4 Parents` perceptions on contribution of learners` attitudes s to learners` performance*

Most parents indicated that “O” Level Mathematics is a subject that needs practice. Most learners, according to the survey made, were lazy to work hence they do not want to be associated with subjects like “O” Level Mathematics which are so demanding. Some of the parents removed the blame from their children. They attributed poor performance to the wrong pedagogical strategies used by the “O” Level Mathematics teachers.

One of the general sentiments by the parents was that O Level Mathematics teachers must consider every learner’s answers not to focus on a particular group leaving out some learners. This shows that the way O Level Mathematics teachers were teaching was different from the way they were trained to teach. During training, they were taught that all learners are equally important and no one should be left behind. Robert (2005) confirmed this when he said that teachers were taught to vary their teaching methods and to move with all learners. The CBC of Zimbabwe emphasised the mantra that ‘NO LEARNER SHOULD BE LEFT BEHIND’. This means that every learner should be taken on board. In terms of competencies, all learners must exit the school system with some exit skills regardless of whether the learner leaves the school at whatever grade or form level. Learners should be fully equipped with life competencies that will enable them to survive in society. This means that the learners should be taught in a way that should enable them to grasp concepts so that they would in turn use the same knowledge as an application in life. This is only possible if the learners are taught well and accordingly.

Some parents thought that regardless of teaching methods which might be poor, learners generally have a negative attitude towards O Level Mathematics. As a result, they end up hating the lessons to the extent that they run away from O Level Mathematics lessons and classes. They only register the subject because it is a must that everyone has to register it (Mawarire and Chirume, 2020). When it comes to the examination, every learner is expected to write the subject. This on its own is a recipe for disaster because no one can pass the subject without lessons and practice. The Government of Zimbabwe, despite the effort to make O Level Mathematics compulsory, should also put in place policies which see to it that all the learners are attending to all those compulsory subjects especially O Level Mathematics. Making lessons compulsory might also increase performance in O Level Mathematics.

## 5.0 Conclusion



Quite a huge number of respondents pointed out that the learners had a very strong negative attitude towards “O” Level Mathematics. Some participants did not put a blame on learners but on the environment since they claimed that the learners were taught the same way at home. If learners are not motivated to love the subject, then it is very difficult to improve performance of the learners.

## 6.0 Recommendations

### 6.1 Recommendations based on the findings of the study

Based on the findings of this study, the researchers recommend the following:

- “O” Level Mathematics teachers should make their lessons interactive and actively involve learners in the teaching and learning process.
- They should use learner centred methodologies in teaching “O” Level Mathematics as advocated for by the Competency Based Curriculum (CBC).

- Learners should take an active role as the teacher facilitates the teaching and learning process.
- The learners should be refocused on the importance of “O” Level Mathematics in everyday life. “O” Level Mathematics Teachers to create an environment which is friendly to learners so that they develop a love of the subject.

### 6.2 Recommendations for future research

- The present study only focused on twelve secondary schools located in one urban district (Glenview-Mufakose) in Harare province. The findings of this study may be difficult to generalise to other secondary schools in other provinces. Therefore, there is great need to carry out a similar study in rural provinces and other urban districts (especially those located in low density areas) which are not in Harare for comparative purposes.
- The present research used a mixed method methodological approach. Thus, if in future a research which is either purely qualitative or purely quantitative may be necessary so that the in-depth knowledge of the factors contributing to poor performance in “O” Level Mathematics in Glenview-Mufakose district can be gained.
- The present study only focused on negative attitude of learners. This is not the only factor and variable which contribute to poor performance in “O” Level Mathematics. If in future a research which looks at more factors other than this may be necessary for a wider coverage of findings.

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