

An Assessment of Grade Seven Learners' Attitudes and Performances towards Mathematics: A Case Study of Pupils at Mamvura Primary School in Masvingo District

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Abstract: -This paper assessed the attitude and performance of learners towards mathematics, a case study of learners at Mamvura primary school in Masvingo District. Quantitative and qualitative research designs were used. Twenty learners and four teachers were used as a sample using stratified sampling. From the findings it was revealed that gender differences in mathematics exists. The study concludes that learners who have favourable attitudes towards mathematics usually work up to their capacities and make good adjustments to mathematics. The study recommends that there is also need for the school to make demonstration lessons and staff development sessions in mathematics so that teachers will be well equipped with the subject. Furthermore, it was noted that teachers'

comments has an effect on attitude and performances of learners in Mathematics.

Keywords:- Attitude, student motivation, intrinsic motivation, self-efficacy.

I. INTRODUCTION

The poor performance in mathematics at Mamvura primary school has influenced the researcher to carry out this research. When analyzing the grade seven results for the past three years 2018 to 2020, it was noted that mathematics had the lowest pass rate compared to other subjects. The results obtained from 2018 to 2020 at Mamvura primary school are shown on the table below.

Table 1: Learners pass rates in English, Shona and Mathematics in 2018 to 2020.

SUBJECT	YEAR	NUMBER OF LEARNERS PASSED	PERCENTAGE %
English	2018	55	69
Shona	2018	58	73
Mathematics	2018	32	40
English	2019	48	60
Shona	2019	58	73
Mathematics	2019	25	31
English	2020	50	63
Shona	2020	60	75
Mathematics	2020	30	34

The researcher cited mathematics as a core subject which is studied from primary level to secondary level. In Zimbabwe it is considered as a major subject for one to develop his/her career. According to the statement read on the mirror dated 15 March 2019, the information released by the provincial Education director concerning the poor results were achieved in mathematics subject which were said to be less than 30% for the whole province. Mamvura primary school enroll about 80 learners every year for grade seven examination. The statistics showed that mathematics seemed to always score less than 50%. According to information in the school files the researcher was enticed to work to the weakness of the cause of mathematics 'poor performance and that alone instill the interest whether it is the question of pupils' attitude and performance towards mathematics. Farrant (1980) points out that, it is only through the development of positive attitude that children may develop as fully as possible all aspect of their potential. Walker (1995:318) propounds that an attitude represents

what a person thinks about something and how he feels about it. The researcher for these reasons decided to carry out this research on learners' attitude and performance towards mathematics.

II. EFFECTS OF TEACHING METHODS ON ATTITUDES TO MATHEMATICS

According to Kalejaiye (1985:2) posit that, "The choice of teaching methods depends on many factors such as level of the class, the ability of the pupils, the nature of mathematics topic and the facilities available in school." Many teachers prefer to teach the class as a whole all the time. This approach often may not yield the desired educational results. Slow learners do not gain much from being taught in a large class of mixed ability and teach them in groups. The class may taught together for part of the lesson before pupils settle into their groups for further work and practice exercise. This procedure will enable the teacher

to attend the weak groups and also give the more able groups more difficult work.

Furthermore, when the teacher select teaching methods for mathematics he/she should see that the teaching methods he/she chooses should allow active learning. This is supported by Angliheri (2000) who suggests that children should be active participants in their learning. He further says teaching methods should provide opportunities for learners to observe, unique, discover, think reflectively and practice. A learner must become the author of his learning so that habits of independent study and group interaction can be developed. Sidhu (1995) propounds that, pupils learn problem solving methods develops qualities of initiative and self-dependence in pupils as they are to face the problematic situations themselves.

Methods that allow for experience based leaning, problem solving by self-effort and pupil interaction are likely build positive attitude in pupils whilst those which are teacher dominated and devoid of pupil experiences lead to negative attitudes. In the same sentiment, Cockcroft (1999) postulates that, during every mathematical lesson a child is not only learning, or failing to learn mathematics as a result and also develop an attitude towards mathematics. Once attitude has been formed, they can be very persistent and difficult to change.

III. RELATIONSHIP BETWEEN LEARNERS' ATTITUDE AND PERFORMANCE IN MATHEMATICS

According to Sarawathi (2003:327) views that,"mathematics is often referred to as the "killer" subject and in India, as also somewhere. Most children fail in school because they cannot cope with the demands of the

V. RESULTS AND DISCUSSION FROM QUESTIONNAIRES

The learners were given questionnaires and the results of the were given in the table below:

PUPILS GENDER	Attitudes towards completing questionnaires			Total
	Favourable	Neutral	Unfavourable	
Female	3	1	6	10
Male	7	1	2	10
Total	10	2	8	20

To analyze the data on the table above the researcher was using a chi-square test at 1% significance level to determine if there is an association between pupils attitude towards completing questionnaires. The reason why the researcher used 1% significant level is that there is less % errors of committing mistakes in an experiment. The researcher was stating the null hypothesis that is

H₀ - There is no association or difference between teachers' attitudes towards completing questionnaires and gender

H₁- There is an association or difference between teachers' attitudes towards completing questionnaires and gender.

discipline". When pupils have this in mind their attitude affect their performance in mathematics. Hurlock (2001) assert that, a person's reaction to any situation, whether be at work, at school, or in social activities, affects his adjustment to the situation. There is a circular reaction between the child's attitude and his/her performance on the subject. Students who have favourable attitudes towards mathematics usually work up to their capacities and make good adjustments to mathematics. Those with unfavorable attitudes, by contrast, tend to become underachievers. Working below their capacities increases their poor adjustment to mathematics. In time, they begin to think of themselves as less able than they actually are. This dampens any motivation they might otherwise have had to do mathematics as a result of their good ability in mathematics, and sorely due to their hard work. In most primary schools, girls out of boys in terms of enrolment figures, so far as long as teachers continue to fall or remain as they are lower than other subjects. It was against the above background that the researcher felt teacher expectations have a significant effect on the performance of learners in mathematics.

IV. METHODOLOGY

In order to cajole and have an in depth understanding on assessment of grade seven pupils attitude and performance towards mathematics , a case study of pupils at Mamvura primary school in Masvingo district, qualitative and quantitative ways of collecting data were used. The researcher used questionnaires to twenty learners which will be analyzed using a chi-square. Interview questions were given to four teachers. Findings were being noted down and the researcher also check the suitability of the learning environment.

The researcher also calculated the degrees of freedom and subsequently state the selection criterion.

$$\begin{aligned} \text{Degrees of freedom} &= (\text{row}-1) (\text{column}-1) \\ &= (1) (2) \\ &= 2 \end{aligned}$$

$$\text{Significant level} = 1\% \text{ or } 0.01$$

$$X^2_{\text{crit}} (2; 0.01) = 9.21$$

➤ *Rejection criterion*
If $x^2_{\text{cal}} \geq x^2_{\text{crit}}$

$$X^2 \geq 9.21 \text{ then } H_0 \text{ is rejected.}$$

From the results obtained from the numerical value of the chi-square test statistics indicated that $\chi^2_{cal} = 1.9$. This means that $\chi^2_{cal} \geq 9.21$ (I reject H_0).

χ^2_{cal} is less than χ^2_{crit} so I accept H_0 which say there is no association between pupils' attitude towards completing questionnaires and gender. From the results obtained from the Chi-square. It shows that there is no association between pupils' attitude on completing questionnaires and gender. This mean there is no gender bias towards completing questionnaires.

VI. RESULTS FROM INTERVIEWS

Howson (1973) advocated for strategies that allow children to acquire knowledge through their experiences. This means that in the learning of mathematics the child should be involved. Teachers have to employ strategies that allow for pupil participation. They must also vary their strategies unlike using the guided discovery always as indicated by the teacher on their interviews. All teachers indicated that they were using the child centered approaches. Mathematics knowledge should therefore cater for individual differences. Only two (50%) consider that teaching methods can hinder academic performance. Kalejaiye (1985) advocated for clear procedures for teaching a mathematics lesson. He advocated for methods that allow maximum interaction with the teacher. The confusion shown by the teachers in explaining the method they used may be sufficient enough to make conclusions that teachers themselves have negative attitudes which make conclusions that teachers themselves have negative attitudes which make the learning of mathematics difficult, hence poor performance by pupils. Only a significant 25% is neutral about the idea of teaching methods. All the teachers interviewed however indicated that they were aware of the practice.

VII. CONCLUSION

There is a circular reaction between the child's attitude and his performance on the subject. Learners who have favourable attitude towards mathematics usually work up to their capacities and make good adjustments to mathematics. Those with unfavourable attitudes, by contrast, tend to become underachievers. It was also shown that teaching method and teacher attitudes determine whether pupils succeed or fail in mathematics. The study argued teachers to maintain a cheerful and optimistic frame of mind. To build positive attitudes and written comments should value pupils work. Comments should therefore indicate the feeling and expectations the teacher had about the piece of work he or she is making and above all be meaningful and helpful to the learner.

VIII. RECOMMENDATIONS

- Learners should be encouraged to do mathematics both at home and school as attitude of both parents and learners has an impact on the performance of learners.
- Teachers should use the methods that promote active participation of the learners as it improves performance as well as attitude of learners.
- School should be friendly place where they are treated with kindness, love and warmth. The same principle of association could be related to the various subject offered.

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