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Examining the students and teachers perception about factors contributing to the decline in performance in mathematics in (SHS) in Manyakrobo District (Upper)

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Abstract
This research aimed at finding out students and teachers perception about factors contributing to the decline in students' performance in mathematics in Asesewa Senior Secondary School in Manyakrobo District (Upper). The researchers narrowed their attention on how do students and teachers perceive resources motivation to learning as a factor inhibiting students' performance in mathematics. Descriptive survey design was used because the study objective was to collect information from respondents on the bases of what contributes to the poor performance of students in mathematics in the District. A total sample size of 150 mathematics teachers and students were used for study. Data collection was done through distribution of questionnaire and were analyzed using SPSS. The major findings of the study were: male performance been better than female performance but in cases where motivations were made in any form, the female performance overtook or came to level equal to the male performance. Also mathematics teachers and students showed a very strong positive response that student's motivation to learn mathematics will be one of the better factors towards the improvement of student's performance in mathematics.
Finally the study reveals that, with respect to gender on the part of teachers and students there were no significant difference in the perception of males and females on the motivation to learn.

Keywords: Motivation, resources availability, students' performance, students and teachers perception, activities, learning

1. Introduction

1.1 Background of the study

Education as a tool has indeed helped in today's scientific and technological world through the various theories and principles. Mathematics as a science has also played major role in this modern era through education. In the advance countries where development is at its peak, the economist, statisticians, the scientist and governments cannot deny the fact that the massive and the fast growing economy had its foundation from mathematics as a science.
Mathematics is a field that develops high level behaviours and acquisitions of the individuals such as communication, generalization, creative and independent thinking, it has become compulsory to learn in communities aiming at being an information community as cited in [6]. There is the need therefore to provide students with a variety of mathematical learning experiences to develop their knowledge and skills. This was buttressed by teaching syllabus for elective mathematics at the Senior High School level issued in [8]. It also emphasizes on Ghanaian young persons' to appreciate the use of mathematics as a tool for analysis, critical and effective thinking skills. With a lot of respect and recognition given to mathematic in this country by policy makers, the subject is taught in the Basic and Senior High School as well as Technical and Vocational schools.
This subject is a pre-requisite into Senior High School, Colleges of Education, Polytechnics and University. Mathematics all over the world is largely being used as a critical filter for students seeking admissions into second circle and tertiary institutions as well as professional institutions such as colleges of education and polytechnics in Ghana [1].

1.2 Statement of the Problem

Mathematics plays a central part in the selection and placement of students into the Senior High School. It is surprising to note how poor some of these students fair in their mathematics classroom. The authorities of the school and the Parent Teacher Association have devised means of curbing the trend of the problem. Some of these measures are checking on teachers' and student's punctuality to class , students sitting arrangement in class, students coming to class with all materials they will need for studies and inviting over parents whose wards are truants. Despite these laudable efforts at improving students' performance in the subject, it appears to be declining over the years. The question that readily comes to mind is: What are the factors responsible for students' poor performance in mathematics in Asesewa Senior High School? It is against this background that the researcher wants to find out the extent to which motivation inhibit learning of mathematics by students in Asesewa Senior High School.
Hence the performance of students will depend on how mathematics as a subject is presented to them during the instructional period. Mathematics as some students sees it as very difficult subject has researched into by many researchers and outcomes show that there are some factors contributing to this. The researchers then seek to investigate into the extent motivation inhibit the learning of mathematics by students in the Asesewa Senior Secondary School in the Manyakrobo District (Upper). The reason being that student's performance in mathematics has fallen drastically in recent years.

1.3 Purpose and Objectives of the Study

The study aimed in finding out the extent to which motivation

inhibit the learning of mathematics by students in Asesewa Senior High School in the Upper ManyaKrobo District. The following specific objectives were set out into order to achieve the broad objectives.

1. To find out the level of decline in students' performance in mathematics in West African Senior Secondary Certificate Examination from 2011-2014 in Asesewa Senior High School in the Upper ManyaKrobo District.
2. To find out students and teachers perception about factors contributing to the decline in students' performance in mathematics in Asesewa Senior High School in the Upper ManyaKrobo District

1.4 Research Questions

In order to guide the study the following research questions were formulated.

1. What is the trend in the decline of Senior High School students' performance in West African Senior Secondary Certificate Examination in mathematics in the last four years (2011-2014) in Asesewa Senior High School in the Upper ManyaKrobo District?
2. How do students' and teachers' perceive resources motivation to learn, as factors inhibiting Asesewa Senior High Schools students' performance in mathematics in the Upper ManyaKrobo District?

1.5 Delimitation

The study used only one school. This was because the district had only one senior high school. Mathematics teachers and students in the school were used because the researcher had already carried out similar works on topics closer to this. Finally, due to the healthy relationship between the researcher and the teachers in the school, it was expedient to use it for the study

1.6 Limitation

Unavailability of funds made the researcher restricted the study. And the only school in the district was what the study focussed the sample on.

1.7 Significant of the study

The findings of the study would add to the pioneering work on the raising awareness of teachers about how motivation as a factor can contribute to the improvement of student performance in mathematics learning. Also the findings of the study would become a reference tool for policy makers, educationist and government as a whole for future formulation of policy and implementation of the motivation in mathematics.

1.8 Review of the related literature

This chapter deals with theoretical and empirical review underpinning the study. The areas considered include: motivation and mathematics, achievement motivation, child expectation and attribution.

2. Motivation and Mathematics

In making instruction interesting in learning mathematics, there is need to use methods/strategies and material/media which will make the learning of mathematics, active, investigative and adventurous as much as possible. Such methods also must be ones that take into account, learner's differences and attitudes towards mathematics as a subject. Examples could be the use of programmed learning texts, use of concrete materials and other instructional devices, which are manipulated. Also, mathematics exercises in form of various pencil and paper activities should be used. To enhance self-esteem of learners, which will in turn improve attitude of such pupils, it is recommended that varying activities (game activities), which has been designed to contain mathematics problems ranging from easy to very difficult, should be used. At least each pupil no matter their ability level should be able to answer some questions correctly. This would go a long way to motivate such pupils towards further learning.

When an activity is designed with its central feature being an admired situation, experience or individual, it would go a long way in motivating, pupils to learn mathematics. For example, in teaching addition at the primary school level, you could centre learning activities around foods like snacks (for example, I got two sweets from mummy and four from daddy how many sweet do I have and so on). It could as well be centre on a pleasurable experience (like going to see father Chrisman) or around an admired person (for example, a most liked character on the television) and so on. All these suggestions would help to motivate learners towards learning. However, one strategy, which has been observed to bring about motivation of learners to learn mathematics, is the use of game based strategy [2].

2.1 Achievement Motivation

How do people differ in their motivation to achieve? In a classic study to assess the differences in strengths of people's achievement motives McClelland and Colleague in [11] developed a projection technique using selected picture cards from the Thematic Apperception Test (TAT). The technique assumes that, when asked to write stories about the pictures, respondents will project their feelings about themselves onto the characters in the pictures. Assessment of the responses involves noting references to achievement goals (concern over reaching a standard of excellence). Subjects who refer to achievement goals are often rated high in achievement motivation; those who rarely or never refer to achievement goals are rated low.

Achievement motivation is often correlated with actual achievement behaviour [10]. The motivation to achieve, however may evidence itself only in behaviour that children value. For example, a child may be highly motivated to achieve, and this may be exhibited in athletics but not in schoolwork. Thus, different situations have different achievement attaining values for children [11].

2.2 Achievement motivation, child expectations and attributions

Individuals' actual achievement behaviour depends not only on their motivation to achieve but also on whether they expect to achieve and whether they fear failure. People are more likely to work hard when they perceive a reasonable chance to succeed than when they perceive a goal to be out of reach [3]. Children's expectations of success can be measured by asking them to predict a certain grade, indicate how sure they are that they can solve a particular problem, and select the hardest task they think they can do from a collection of tasks varying by degree of difficulty [16].

Children with high expectation for success on a task usually persist at it longer and perform better than children with low expectations [7]. Researchers like [3] have found that children with high Intelligent Quotient and high expectations of success in school do, in facts get the highest grades. Children with high Intelligent Quotient and children with low Intelligent Quotient and low expectations receive lower grades than children with low Intelligent Quotient and high expectations. In addition to child rearing practices, reviewed previously, teaching styles and communication pattern affect children's attributions. When teachers are caring and supportive and emphasize the teaching learning process over the performance outcomes, and when they give feedback, children tend to be motivated to achieve and to expect success [9].

3. Methodology

This particular aspect is made up of the following: the research design, population, sample and sampling procedure, data collection procedure, and data analysis plan.

3.1 Research Design

The researchers used descriptive survey design for the study of the research design because the study objective was to collect information from respondents on the bases on what contributes to the poor performance of students in mathematics in Asesewa Senior High School. Survey was considered to be the best approach for the study because it is a relatively inexpensive way to get information about people's attitudes, beliefs, and behaviours. Notwithstanding the aforementioned limitations, the descriptive survey was employed in the study. The survey enabled the researcher to reach out to the sample occupying the vast area.

3.2 Population

The population for the study was all SHS teachers and students in Ghana. But the target population for the study was made up of mathematics teachers and forms three students in the Upper Manya District. The Asesewa Senior High School in the Upper Manya District was then the target population since it is the only Senior High School in the District.

3.3 Sample Size and Sampling Procedure

A sample size of 150 mathematics teachers and students in the Asesewa Senior High School was used for the study. The respondents were put into four categories; 1, 2, 3 and 4 based on courses or programmes of the respondents, that is, science, home economics, general arts and business. Sample was then drawn from each category/stratum (see Table 1). To ensure fair representation from the various categories, selection was done based on the total number of students in each category.

Table 1: Sample Distribution of Students

Category	Sample
1	33
2	35
3	25
4	57
Total	150

3.4 Data Collection Instrument

To obtain data for the study, questionnaire was used. Two different questionnaires were developed for the study. One questionnaire for the mathematics teachers and another one for the students selected for the study.

3.4 Data Analysis Procedure

Data collected from the various respondents selected were perused to ensure that responses given by respondents were complete and relevant to the study. As quality control measures, the researcher did sorting, editing and coding of the data to identify errors, omissions and non-completion of some questions as well as to identify general gaps in the data collected. The analysis of the data was done with the Statistical Products and Service Solutions (SPSS 17).

4. Results and Discussion

This aspects deal with the main purpose of the study which focused on the poor performance of students in the mathematics in Asesewa Senior High School in the Upper Manya Krobo District. The data analysis covered the two main aspects in line with the research questions formulated to guide the study. The units of analysis of the study were the subjects selected for the study. And in analyzing and interpreting the data, percentages, means, standard deviation, variance and frequencies and other statistical tests were used in generating the outcomes (answers).

4.1 Demographic Characteristics of Respondents

In all 150 mathematics teachers and students took part in the study. The outcomes in their personnel characteristics were presented in table 2 and 3.

Table 2: Sex of Mathematics Teacher and Students Respondents

Gender	Frequency	Percent
Female	60	40.0
Male	90	60.0
Total	150	100.0

From Table 2, it is seen that majority of 90 (60%) of the respondents were males whiles the minority were females with 60 (40%).

Table 3: Ages of Mathematics Teacher and Students Respondents

Age	Frequency	Percent
15-17	60	40.0
18-20	70	46.7
21-24	5	3.3
25-35	10	6.7
36-55	4	2.7
0ver 55	1	0.6
Total	150	100.0

From Table 3 it is also seen that 70 (46.7%) were in the age range of 10-20 years, 60(40%) were between 15-17year. Whiles the age range of 25-35 years recorded 10 (6.7%), that age range 21-24 was 5(3.3%) with 4(2.7%) for the age range of 36-55 and 1 (0.6%) were over 55 years.

4.2 Research Question 1

What is the trend in the decline of Senior High School students' performance in West African Senior Secondary Certificate Examination in mathematics in the last four years

(2011-2014) in Asesewa Senior High School in the Upper ManyaKrobo District?

The question sought to find out the trend in the decline of Senior High School students' performance in West African Senior Secondary Certificate Examination in mathematics in the last four years (2011-2014) in Asesewa Senior High School in the Upper ManyaKrobo District. Table 6 below shows the trend of students' achievement in WASSCE Mathematics Examinations conducted by WAEC. The trend of achievement is for a period of four consecutive years (2011 – 2014). It can be seen that the performance has been poor and as the years progress especially with respect to the performance of girls. It was only in 2012 that the school recorded an average performance apart from which results has not been good.

Table 4: Percentage of Performance of students from 2011 – 2014

Year	Percentage Passed		Percentage Failed	
	Males	Females	Males	Females
2011	92.65	91.95	7.35	8.05
2012	73.97	57.2	26.03	42.8
2013	34.29	18.74	65.71	81.26
2014	77.30	59.45	22.70	40.55

4.3 Research Question 2

How do students' and teachers' perceive motivation to learn, as factors inhibiting Asesewa Senior High Schools students' performance in mathematics in the Upper ManyaKrobo District?

Information obtained on how teachers perceive availability of teaching/learning materials as contributing factors for the decline in performance in mathematics are presented in Table 5 below.

4.4 How Teachers Perceive Motivation to Learn

Mathematics teachers' response on how they perceive students motivation to learn as a contributing factor towards the decline in performance of students in mathematics are presented in Table 5 below. Minority (n=7) are undecided on whether they enjoy learning mathematics and whether or not they are good at mathematics. 8 out of 15 agree that learning mathematics will help them in their daily life, 7 out of 15 also agree that they read mathematics from mathematics textbooks and other learning resources in their spare time, 6 strongly agree that they feel extremely anxious and fearful, when they hear of going to take mathematics examinations, 14 agree they need to do well in mathematics and 12 out of the 15 believe that maths is difficult.

Table 5: Frequency of how Teachers Perceive Motivation to Learn

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
I enjoy learning mathematics	1	3	7	4	0
I am just not good at mathematics	0	5	6	4	0
I think learning mathematics will help me in my daily life	1	3	3	8	0
I need mathematics to learn other school subjects	0	0	2	7	6
I read mathematics from mathematics textbooks and other learning resources in my spare time	0	5	3	7	0
I feel extremely anxious and fearful, when I hear of going to take mathematics examinations	2	1	2	4	6
I need to do well in mathematics to get into the university of my choice	0	1	0	7	7
I need to do well in mathematics to get the job I want	0	5	8	2	0
I find mathematics difficult	0	1	2	6	6
I feel at ease and relaxed when I am preparing to take mathematics examinations	2	5	3	0	5

From Table 6, the mean of means is 3.4 (approximately 3.00) which implies that teachers are undecided as to whether the motivation to learn is a factor to the performance of students in mathematics at the WASSCE level.

Table 6: Means of how Teachers Perceive Motivation to Learn

	N	M	Std Deviation
I enjoy learning mathematics	15	2.93	0.884
I am just not good at mathematics	15	2.93	0.799
I think learning mathematics will help me in my daily life	15	3.20	1.014
I need mathematics to learn other school subjects	15	4.27	0.704
I read mathematics from mathematics textbooks and other learning resources in my spare time	15	3.13	0.915
I feel extremely anxious and fearful, when I hear of going to take mathematics examinations	15	3.37	1.438
I need to do well in mathematics to get into the university of my choice	15	4.33	0.816
I need to do well in mathematics to get the job I want	15	2.80	0.676
I find mathematics difficult	15	4.13	0.915
I feel at ease and relaxed when I am preparing to take mathematics examinations	15	3.07	1.534

4.5 How Students perceive Motivation to Learn

On the role of the motivation of students to learn as a contributing factor to the decline in performance in mathematics, some students perceive that they actually enjoy learning mathematics (n=58), but agree that they are not good at mathematics, strongly agree that mathematics will help them in their daily lives, they also strongly agree that they need mathematics to learn other subjects. Also, they agree that they read maths in their spare time, feel anxious and fearful during maths lessons and exams.

Table 7: Frequency of how Students Perceive Motivation to Learn

	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
I enjoy learning mathematics	10	13	18	58	51
I am just not good at mathematics	24	44	21	45	16
I think learning mathematics will help me in my daily life	7	3	7	41	92
I need mathematics to learn other school subjects	9	10	14	51	66
I read mathematics from mathematics textbooks and other learning resources in my spare time	13	32	17	50	38
I feel extremely anxious and fearful, when I hear of going to take mathematics examinations	23	42	20	43	22
I need to do well in mathematics to get into the university of my choice	8	5	7	30	100
I need to do well in mathematics to get the job I want	4	12	14	31	89
I find mathematics difficult	22	48	17	37	26
I feel at ease and relaxed when I am preparing to take mathematics examinations	25	28	23	24	30

With a mean of means of 3.6 (approximately 4), students perceive that the motivation to learn is a contributing factor to the decline of performance in mathematics.

Table 8: Means of how Students Perceive Motivation to Learn

	N	M	Std Deviation
I enjoy learning mathematics	150	3.85	1.180
I am just not good at mathematics	150	2.90	1.289
I think learning mathematics will help me in my daily life	150	4.39	1.009
I need mathematics to learn other school subjects	150	4.03	1.161
I read mathematics from mathematics textbooks and other learning resources in my spare time	150	3.45	1.309
I feel extremely anxious and fearful, when I hear of going to take mathematics examinations	150	2.99	1.334
I need to do well in mathematics to get into the university of my choice	150	4.39	1.086
I need to do well in mathematics to get the job I want	150	4.26	1.089
I find mathematics difficult	150	2.98	1.363
I feel at ease and relaxed when I am preparing to take mathematics examinations	150	3.17	1.389

5. Discussion

After going through and analyzing the school's broadsheet for WASSCE result for mathematics from year 2011 to year 2014, It was evidently clear that performance has not been good.

The trend reveals that from 2011

Through to 2014, male performance has been better than female performance. A research conducted by [5] revealed that Students' poor performance in mathematics is not gender based but fright/phobia and students attitude to the subjects. At one point we noticed that females perform better than male and at another point males performed better than female.

Wentzel [12] purported that individual characteristics such as intelligence, cognitive styles, and personality play an important role in learning and instruction as does the context of learning. Other research findings have shown that individual students' characteristics variables such as motivational orientations, self-esteem and learning approaches are important factors influencing academic achievements.

In the effort to improve students cognition and affective outcomes in mathematics and/or school learning, educational psychologists and mathematics educators, have continued to search for variables (personal and environmental) that could be manipulated in favour of academic gains. Of all the personal and psychological variables that have attracted researchers in this area of educational achievement, motivation seems to be gaining more popularity and leading other variables [16]. All the above stated reasons, for persistent failure in mathematics, which have been proffered, bear relevant in one way or the other to the poor performance of pupils in mathematics. This has led to a cycle of events that could be illustrated thus: When explaining the illustration above [2] explained that; when pupils express lack of interest in the subject, it affects the way they react or listen to the teacher. And when many of the pupils believe that they cannot pass, the teacher is also affected. One unfortunate outcome of this is that, the negative attitude towards the subject is passed down from one generation of pupils to another and therefore the cycle keeps enlarging.

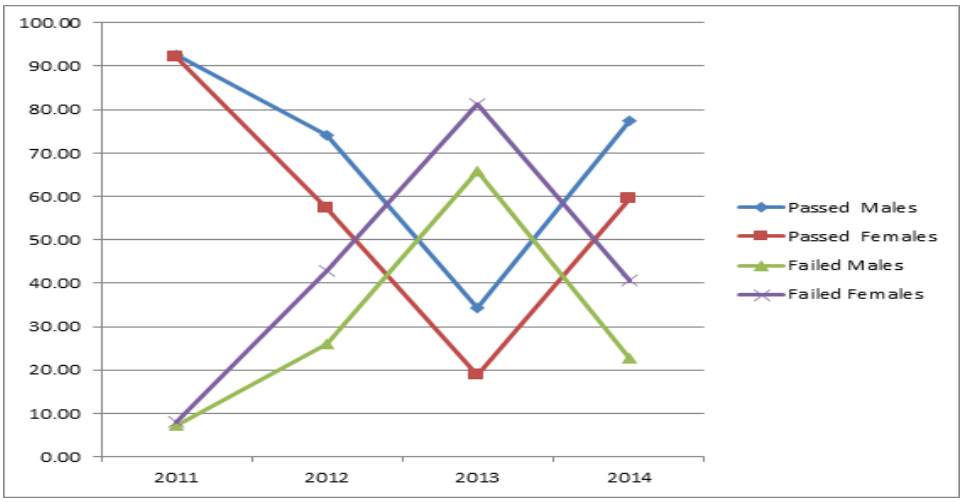

Fig 1: Trend analysis of Percentage Performance of students

From Figure 2, the percentage pass of males in 2011 was 92.65 as compared to that of Females which stood at 91.95. In 2012 73.97% males passed as compared to 57.2% for females. With respect to failures, whiles the trend of passes goes down, that of failures goes up except in 2014 where both sexes recorded a considerable rise in percentage passes.

To answer the question on how students and teachers alike perceive the factors under study as contributing factors to the decline of performance in WASSCE various accounts were considered. They argued that when students are actively engaged in the study of mathematics, they can become motivated producers of mathematical works rather than just passive consumers of prepared materials. Another factor which was considered was the motivation of students to learn as a contributing factor to the decline in performance of mathematics. After the perception of teachers was computed, it came to light that teachers are actually undecided as to how they perceive motivation to learn. With a mean score of 3.4 on a 5 point likert scale, it suggests that mathematics teachers of Asesewa SHS can't figure out if motivation contributes to performance in mathematics, the mean value ranges from 2.80 to 4.37. According to them, in making instruction interesting in learning mathematics, there is need to use methods/strategies and material/media which will make the learning of mathematics, active, investigative and adventurous as much as possible. Such methods also must be ones that take into account, learner's differences and attitudes towards mathematics as a subject. Examples could be the use of programmed learning texts, use of concrete materials and other instructional devices, which are manipulated. Also, mathematics exercises in form of various pencil and paper activities should be used. The students on how they perceive motivation to learn as a factor in the performance in mathematics perceive that it contributes to how students

Perform in mathematics in WASSCE. On a five point likert scale, the mean was 3.6 (approximately 4) which suggests that they (students) agree to the assertion that motivation plays a major role in their performance.

5.1 Summary, Conclusions and Recommendations

Summary of Major Findings

Based on the analysis undertaken the following findings were made:

1. The study revealed that male performance in West African Senior Secondary Certificate Examination in mathematics has been better than female performance from 2011-2014
2. The study revealed that teachers were undecided as to how they perceive motivation to learn whiles students perceive motivation as important factor in the performance in mathematics

6. Conclusions

From the findings of the study, the following conclusions are drawn:

The findings confirm that, the trend of students achievement in mathematics from 2011-2014 has been poor as the years progress especially with respect to the performance of girls. It was only in 2012 that the school recorded an average performance apart from which results has not been good.

The study further indicates that undecided as to how they perceive motivation as a major component of learning but the students asserted that motivation plays a major role in their performance in mathematics. The study reveals that, with respect to gender on the part of teachers and students there were no significant difference in the perception of males and females on motivation to learn.

6.1 Recommendations

The following recommendations were outlined by the researcher:

1. Teachers must show concern for students' low level of performance in the classroom. They must begin to reflect on the factors that contribute to students' engagement and use motivational strategies to involve students in academic activities for improvement of their levels of achievement.
2. Classroom teachers should use rewards and incentives appropriately. The goal for these strategies should be to build a stronger student perspective on intrinsic motivation as an incentive for learning, such as the pride of completing a difficult task or the satisfaction derived from a job well done.

6.2 Appendices

Appendix A: Frequency of Performance of Students from 2011 – 2014

Table 9

Year	Number of passed males	Number of failed males	Number of passed females	Number of failed females	Number Absent	Total students presented
2011	63	5	80	7	2	157
2012	108	38	143	107	5	401
2013	144	276	95	412	6	933
2014	126	37	129	88	10	390

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