

## Factors Associated with Secondary School Learners' Mathematical Poor Performance in Kandahar City

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### ABSTRACT

Mathematics makes a base for the different courses from social science to natural science. Even in daily life basic mathematics knowledge and skills are required to handle your daily life. Various negative and positive factors affecting attaining mathematics skills in students. We have been experienced that students are not interested in mathematical subjects and courses, in Kandahar City. The reason could be troll back to school and school duration. Students' Motivation and inspiration very important for school-aged students. It could change the decision and thoughts of students throughout life. This research is descriptive in its nature and data has been collected through a written questionnaire by random simple sampling from secondary classes students in Kandahar city. The finding showed that majority of students not interested and less number of students liked this subject. Lack of students' labour, parents' supports, and unprofessional of teachers and low qualified teachers.

**Keywords:** Mathematics, secondary school, anxiety, parents, gender

### Introduction

Kandahar is the second-largest city in Afghanistan, with a densely populated and many public and private schools, are providing education services for both boys and girls. Different courses are being taught in secondary schools which are; science, mathematics, geography, history, geometry, languages, etc... Mathematics is a compulsory course in primary, secondary, and higher schools in Afghanistan. Math is very important in the arts, social science, and science stream. Furthermore; this course is widely being applied in professional fields such as pharmacy, engineering, medicine, architecture, law, accounting, etc. (Onwuka and Kolo, 2010). Learning mathematics and attaining mathematics skills is very important for modern society. Mathematical thinking is important as a habit of mind and its use in the working area, business, and finance, even for

personal decision making (Srivastava, et al, 2016). Mathematical perception is usually effective in achieving career success and managing daily life. For this reason, mathematics is a major field in primary, secondary, and higher education (Baloglu and Kocak, 2006).

Currently learning mathematics is very important not because of professionalism but it could be used in different disciplines. Science stands on the mathematics, even it is necessary to have some basic knowledge for daily routine works. Various negative and positive factors affecting attaining mathematics skills. These factors could be age, the interest of students, gender, indigence level, health, and nutrition level, teacher skills, school starting age, and attitude to mathematics course (Sevindir et al. 2014).

We have been experienced that students are not interested in mathematical subjects and courses, in Kandahar City.

Whenever; we are asking about mathematical issues and related fields, the majority of students are showing less interest in mathematics and mathematically related subjects. Furthermore, in the National entrance exam (Kankor), 43 questions are included from math and mathematical subjects, and 60 minutes are allocated to this part but we have seen frequently that, majority of candidates are not prioritizing this part, or they are starting other parts of the question sheets, or even candidates are not working by pen and solving all the questions with guess and conjecture, which indicates that not have appropriate skills and knowledge to solve mathematics questions. Therefore, this paper would investigate that what are the main cause/s of the students in less acquired skills. As mathematical issues have interrelated with each other and play a role as a chain and each part has a connection with another, moreover; the most important is the fundamental or base. If the base has not provided sufficient hard and soft skills to students, it would negatively affect the upper-level grades. So, therefore; we selected secondary schools that play a role for upper-grade classes and many factors have been investigated, such as teacher, environment, pedagogy, curriculum, co-curriculum materials, and many more in this research.

#### Objective:

The main objective of the research is to discover the main cause/s or factors that affecting students' interests and mathematical performance.

### Literature Review

There is a strong relationship between school type and mathematical anxiety, missionary and administer show one's lower of anxiety in assimilation to another kind of school. Ashcraft and Faust (1994) found that schools administer by the private sector show is better to exploit than government schools. Grade 5 to 8 is a critical period for American students because of achievement in sciences and mathematics. Achievements in this level and subjects determine high school curricular choices and enrolment at a higher level (Reynolds, 1991). The courses in mathematics and sciences are sequential, for making better performance and middle schools are critical

because making better access in advanced courses and full success in high schools and beyond (Singh et al., 2002). A study has been done in secondary schools of Lucknow, India on both 500 males and the same number of females' students by choosing random sampling and investigated whether the gender and parents' education level has any relationship between students' mathematical anxiety or not. The study was qualitative. Findings showed that there is a significant difference between male and female mathematical anxiety. Female students have more anxiety than males in mathematics. In addition to that, it shows that the education level of parents reversely affects child anxiety both by father and mother or one of them (Srivastava et al., 2016).

Mathematics anxiety directly or indirectly affects all aspects of mathematics teaching and learning. Mathematics anxiety could negatively affect students in learning mathematics at college, school, or at home (Rossnan, 2006). Thus teachers play a very important role during a teaching in decreasing the level of mathematics anxiety among their students. Parents could also provide positive mathematics skills for their children (Shields, 2006).

Mathematics anxiety found that are related to a range of concerns and problems in the learning of mathematics. Highly individuals' math-anxious are characterized by a strong tendency to avoid math, which ultimately weakens their math competencies and forecloses important career paths. But timed, on-line tests reveal math-anxiety effects on whole-number arithmetic problems, whereas achievement tests showed no competence differences. (Ashcraft, 2001). Moreover; a similar study was conducted to study the mathematics-related Beliefs factors affecting and problem-solving performance on the students, performance in a Comprehensive University in the capital city of Manila of Filipino. The study used a descriptive survey and collected data through a questionnaire from 336 students, One hundred two (102) male and two hundred thirty-four (234) females. As the research was directed by multiple research questions, therefore; the study results showed multiple findings. Based on the findings, it was recommended that Filipino focus on factors that positive beliefs and efforts can increase mathematical ability

and the usefulness of mathematical problems in their daily lives. In addition to that, gender differences, positive beliefs can affect in increasing mathematics ability (Sangcap,2010). Likewise, a study conducted to examine the learning outcomes of different levels and showed that students are strongly related to their beliefs and relations towards mathematics (Andreassen,2005; Leder, & Grootenboer, 2005).

Kurniawati (2011) reported that the learning process can be thought-provoking encourage and problem-based learning is effective in increasing levels of thinking. Teachers today still asking the question as a way to help their students develop thinking skills. They use constructs and understand concepts and topics. In fact, asking questions may be the most widely used teacher intervention. Lasry, Watkins, Mazur, & Ibrahim, (2013) reported that giving class iteration opportunities, thinking opportunities, and opportunities answering questions for math, science, and engineering students' increasing retention of the content in the mind as well as the recall of the content. The lower self-confidence students answer to questions in a longer time (Lasry, et al., 2013).

A study was conducted by Angibo (2015) in Enugu and Obollo in senior secondary schools and investigated seven variables; teacher factor, student factor, class size, govt. factor, instructional strategy, Math anxiety, and infrastructure problem. The result showed that except class size and governmental factors all had a positive relation to students' interest in mathematics.

### Methods

This is a descriptive research in its nature and has been done in Kandahar City in public schools. Secondary classes have been selected for this research and in Afghanistan secondary schools are included from 7th to 9th grades. The population for this research considered only secondary schools' students and data was collected through a written questionnaire with simple random sampling. Two hundred students were selected for data collection from different high schools that attained ministry of education attention. The data was analyzed by

IBM SPSS 24th version, frequency and percentage were calculated.

### Results

Research showed that parents' knowledge and skills could positively affect mathematics learners. In addition to schools' teachers, parents play important role particularly while students are slow learners in mathematics' and require more time and practice.

Table 1.1: Anyone knows mathematics in their home?

	Frequency	Percent
Yes	67	33.5
No	48	24.0
Basic	85	42.5
Total	200	100.0

Table 1.1 indicates that 24 % of parents does not have basic information about mathematics and 25% have basic knowledge about mathematics subjects and only 33.5% responded that their parents know about mathematics.

Table 1.2:

S/N	Items	Answers	
		Yes N (%)	No N(%)
1	Do you attend schools every day?	169(84.5)	31 (15.5)
2	Did you have a professional teacher in primary school?	144(72)	56(28)
3	Does your teacher use Co-curricular material during teaching?	70 (35)	130(65)
4	Do your teacher give you chance in the class?	145(72.5)	55 (27.5)
5	Can you solve mathematics questions?	115(57.5)	85 (42.5)

Table 1.2 shows that 84.5% of the students attending schools every day and only 15.5% indicates that students are not attending daily. In term of professional teacher Table, 1.1 shows that 72% of schools had professional teachers while 28% responded that did not have professional teachers in primary schools. It's very clear that only schools' mathematics books are not sufficient to develop students' math skills. it needed to be supported by co-curricular activities but unfortunately finding further shows that only 35% of teachers are using extra materials while they are teaching, but 65% responded that they do not have co-curricular activities and neither they are using supporting materials.

In Some classes teachers give chances only to intelligent students or they may have a target group but some have distributed chance equally. The finding shows that 72.5% of chances have been given to students in the class but 27.5% responded that chances were not given to them in the class. If the real scenario behind the teaching was the same it looks that the situation is good. Furthermore; while asked that whether they can solve mathematics questions, that 57.5% of participants responded that they can solve mathematics questions but 42.5% indicated that they cannot solve mathematics questions. It shows a great number that is unable to solve mathematics questions.

**Table 1.3: Teacher education degree**

	Frequency	Percent
Baccalaureate	47	23.5
Post-Baccalaureate	56	28.0
Bachelor	32	16.0
Others(Specify)	65	32.5
<b>Total</b>	<b>200</b>	<b>100.0</b>

Table 1.3 shows that 23.5% of the teachers have baccalaureate and 28% of teachers who are teaching in secondary schools have post-baccalaureate and only 16% indicates just holding bachelor degree.

**Table 1.4: If he/she was not professional do they know mathematics?**

	Frequency	Percent
Yes	116	58.0
No	39	19.5
Less	45	22.5
<b>Total</b>	<b>200</b>	<b>100.0</b>

Furthermore; it indicates 19.5% does not know mathematics and 22.5% of have less information about mathematics and only 58% know mathematics.

**Table 1.5: Current teachers' education level**

	Frequency	Percent
Baccalaureate	53	26.5
Post-Baccalaureate	54	27.0
Bachelor (UG)	28	14.0
Others(Specify)	65	32.5
<b>Total</b>	<b>200</b>	<b>100.0</b>

Table 1.5 indicates that 26.5% of teachers are holding a baccalaureate degree and 27% have post-baccalaureate education level and only 14% have a bachelor degree and 32.5% of the teacher have either have upper than a bachelor degree and or less than 12 grade.

**Table 1.6 Do current curriculum are easy for you?**

	Frequency	Percent
Easy	97	48.5
Difficult	103	51.5
<b>Total</b>	<b>200</b>	<b>100.0</b>

Table 1.6 shows that the current curriculum is not easy for the secondary students, almost 51.5% responded that the curriculum is difficult for them and 48.5% responded that it is easy for them.

in intended subjects. It shows that only 40.5% of students are strongly interested in mathematics, while 5% and 8% disagree and strongly disagree respectively. likewise, 7.5 % and 7% do not like mathematics lessons and 39% only strongly like mathematics and the rest are either do not like or like less. In terms of enjoying whether students enjoy from mathematics lesson, while someone interested and liked the subject he/she would enjoy it as well but it indicates that 14% are just only agreed and 10% and 8% are whether disagree or strongly hate this subject. Though a higher number of students believe that mathematics is important for their daily life and 55% responded that it strongly solving their daily problem life.

**Table 1.7**

S/N	Item	Answers				
		Strongly agree N (%)	Less Agree N (%)	Agree N (%)	Disagree N (%)	Strongly disagree N (%)
1	I have interest with mathematics subject	81 (40.5)	58 (29)	35 (17.5)	10 (5)	16(8)
2	I like mathematics lessons	78 (39)	62 (31)	31 (15.5)	14(7)	15(7.5)
3	I enjoy mathematics lessons	78(39)	58 (29)	25 (14)	20(10)	16 (8)
4	Math is a good subject	58 (29)	26(13)	21 (10.5)	29(14.5)	66 (33)
5	Only learning formula is not important in math's	63 (31.5)	54 (27)	35 (17.5)	33 (16.5)	15 (7.5)
6	learning math's can help daily life problem	110 (55)	38(19)	25(12.5)	14 (7)	13(6.5)
7	I actively participate in mathematics learning	80(40)	61(30.5)	32(16)	16(8)	11 (5.5)
8	I have a schedule for math learning	69 (34.5)	46 (23)	32(16)	30(15)	23(11.5)
9	Do you discuss with your classmate during maths problem solving	75(37.5)	40(20)	36(18)	26(13)	23(11.5)

Table 1.7. Without students' interest, there is no possibility to achieve knowledge and skill

actively participate, 55.5% participate sometimes and 8% and 5.5% are either not participating or participating very rarely in the teaching and learning process in the class. As

we know to learn mathematics need a schedule for practices, therefore, if someone makes a good schedule for him/herself then it would be possible for them to practice and then could learn but the finding shows that 23% and 26.5% do not have a daily schedule. In terms of discussing with classmates. The finding shows that 11.5% and 13% do not have any practice with their classmate for solving math problems.

their lesson, 38.5% shows that the teacher has sometimes and only 48% have paramount on mathematics teaching subject. Teaching is not sufficient in mathematics but it is very important to give chance to students to practice or compel students at anyhow to practice, the finding shows that 20% never received homework, 30.5% has been given sometimes and only 49.5% responded that always received homework.

Table 1.8

S/N	Item	Never N (%)	Sometimes N (%)	Always N (%)
1	In case questions are Vague do your teacher re-explain maths question	23 (11.5)	80 (40)	97(48.5)
2	Do your maths teacher respond accordingly	22 (11)	51(25.5)	127(63.5)
3	Does your mathematics teacher have paramount on a lesson?	27(13.5)	77(38.5)	96 (48)
4	Does your math teacher give you homework and then check it?	40 (20)	61(30.5)	99(49.5)
5	Do your maths homework are more than expectation	74 (37)	71 (35.5)	55(27.5)
6	Do your math teacher allocating marks for homework	85 (42.5)	45(22.5)	70 (35)
7	Do your math teacher solve your problem out of the class	63 (31.5)	78 (39)	59(29.5)
8	Do your math teacher teach you very fast	66 (33)	76 (38)	58 (29)
9	Do your math teacher teach only for intelligent students	79 (39.5)	60(30)	61(30.5)

Table 1.8 First question belongs to methodology and teaching approaches for students. It shows that 11.5% never explain the vague question and 40% explain sometimes and 48.5% explain always. Furthermore; it is important that teacher respond to his/her students accordingly, if the students reveal a question so, therefore, the response shows that 11% never respond students question, 25.5% reply sometimes and only 63.5% shows that the teacher response to students questions accordingly. Likewise, it is not sufficient to say that response and explaining are enough but the most important thing is teacher ability and paramount of them on their lessons. It shows that 13.5% does not have paramount on

Moreover, sometimes sufficient homework is preferred for supporting students' math skills, but if the homework is overloaded by teachers the result would be vice versa. 37% responded that it's never overloaded for them, but 35.5% says that sometimes overloaded on them and 27.5% says that, the homework given by their teachers is always overloaded.

Sometimes teachers are allocating a few marks for the performance of the questions and homework. Findings in this research show that 42.5% never allocating marks for homework, 22.5% shows that



sometimes allocating some marks but only 35% always allocating marks for students' homework. Besides, some students are not able to understand mathematical issues during the specified time, but they need additional time or guidance so, therefore; it shows that 31.5% never give time out of the class to students, 39% shows that sometimes give time, but the lowest percentage only 29.5% indicates that always give time out of the classes to students.

Pedagogical teaching is very important; someone may have the ability to teach but not the ability how to teach. If a teacher teaches fast student will not be able to understand, the result shows that 33% never teaches fast, 38% indicates that sometimes teaches fast and 29% of findings show that teachers teach very fast. Also, findings show that 39.5% of teacher always for intelligent students and 30% sometimes teacher for intelligent students, and only 30.5% indicated that never teaching for all students.

### Discussions

According to Shields (2006) and Srivastava and his colleagues (2016) researches, parents can help in decreasing mathematical anxiety and can improve mathematical skills. But this research showed that parents do not have sufficient knowledge about mathematics and will be not able to help their children. The majority of students are attending schools on daily basis, but still, there are students that have not interested in mathematics. The reason could be related to the teaching process or education level of teachers which can positively affect the beliefs and interest of students. The result shows that majority of those teachers who are teaching in secondary schools holding a baccalaureate or either post-baccalaureate (graduated from teacher training centers) degrees and moreover; even some teachers may not have been graduated from a twelfth class and are teaching mathematics in secondary schools which effects on students' outcome. The result also showed that mathematics with different backgrounds teaching this course. Only less number graduated from mathematics fields while some other graduated from chemistry, biology, physics, and even non-science stream. The case is not ending with this, even still non-professional teachers are teaching

mathematics, which is not graduated from mathematics fields. So furthermore, a huge percentage showed that teachers did not have sufficient knowledge about mathematics or either they have less knowledge about mathematics contents.

In terms of curricular activity and using co-curriculum less percent are practicing this while majority either not have a curriculum or nor they have curricular activity and not giving suitable practicing time. Therefore, mathematics is not possible to learn by thinking it needs to be practiced and solve problems frequently. So, therefore; the result could be negative and students would not be able to solve mathematics questions and queries which this confirmed by students' responses as well.

The above mention is not only the case but sometimes teaching curricula is very important it should be not too easy not too difficult in both cases the result might be not good. Choosing appropriate curriculum for specific students, aged, class and country are very important. The result showed that the current teaching curriculum is not accepted by students and showed that is difficult for them. it could have two reasons either the students have not good background in previous classes and teachers did not properly teach them, or it could be really difficult and might be higher than the level of students. If this case continues in the class students might show less interest in mathematics subjects, which this case approved in this research and the majority of students are not interested or they less interested. Though the majority of students believe learning help in their daily life, still they are not actively participating in mathematics learning and still some students do not have a schedule for mathematics learning. One of the most important ways to learn mathematics, discussing with a classmate and solving complex questions together, but the result showed that majority of students practicing this approach of learning, and still, some are not doing this.

To understand whether teacher helping students properly or not, it's important to ask students and take feedback from them, therefore; the result showed that in case question is vague or complex, the majority of them never re-explain it or sometimes they explain, and less than fifty percent responded that issues are re-explained for them. so it

shows less contribution of a teacher to the students. Besides, it's very important to respond to questions accordingly, but it also indicated that sometimes the teachers violating and not responding accordingly. In Case of paramount of teacher, less than fifty percent are showed that have always but it could be one of the most reasonable for the students that could not learn because of not paramount of teacher and would not be able to convey concepts and skills to students and due to that students could not learn. Teachers are giving homework and it showed that most of the time it has not been checked, which compel students to perform his/her homework and know his/her mistake. If it has not been checked by students it would not be beneficial at all. If homework is overloaded for students then the impact would be verse and the time which does not allocate any marks for the homework the students will not try their best for the performing. As Lasry and his colleague in 2013 insisted that giving time to a student could help students in thinking, opportunity in

answering questions for math, and as well increasing retention of the content in the mind and recall the old contents. Likewise; this research showed that teachers are not teaching fast to students in Kandahar city and teaching for all the students'.

### Conclusion

The different variable was investigated in this study. The most important factors that could affect students' mathematics skill in Kandahar Schools could be teacher specialization and instructional strategy, non-professional teachers, curriculum toughness, less implementation of co-curricular materials, not rechecking students' homework, lack of sufficient practicing time to students, have a schedule and lack of non-professional teachers which are teaching in secondary classes. In addition, a family of students have less knowledge or do not have any knowledge regarding mathematics issues that cannot support their children.

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