Effect of Students Attitude Towards Mathematics on their Mathematical Achievement at Secondary School Level

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Abstract—The effect of student's attitude on mathematical achievement has gathered tremendous attention from various researchers. However, there is a degree of inconsistency in the findings regarding these effects. The aim of the study was to find out the effect of students' attitude towards Mathematics on their mathematical achievement at secondary schools in AJ&K. The objectives of the study were; to analyze students' attitude in Mathematics at secondary level, to compare students' attitude and academic achievement in Mathematics (gender wise) in AJ&K and to find out the effect of students' attitude on achievement in Mathematics at secondary level in AJ&K. The research was descriptive and quantitative in nature. All students of 10th class of Govt. Secondary Schools in District Bagh AJ&K were the population of the study. There were 1076 students (458 boys and 618 girls) studying in 10th class in Government Secondary Schools of District Bagh. Sample was taken using Stratified random sampling technique. The researcher selected 444 students (192 male and 252 female) using proportionate stratified random sampling technique. Researcher constructed five-point Likert scale questionnaire to collect the data. It was concluded that attitude had an impact on the mathematical achievements of the students. Parents' education, qualification and social status had positive effect on academic achievements of students. It is recommended that students may be encouraged to achieve mathematical goals

Keywords—effect, students' attitude, mathematics, mathematical achievement, secondary school level

1 Introduction

Mathematics is the most established of all sciences and it has affected the nature of human existence on our planet. It is collectively concurred that mathematics is the language of science, innovation and technology. Furthermore, it shows the ways to advancement and progress in different fields of life like art and culture. Mathematics plays vital role in development of reasoning skills. At elementary and secondary level,

the base on math ought to be forced to create mental perception and imagination or creativity. Due to absence of appropriate information on Mathematics, the students suffer throughout the life. There is consensus among educators that Mathematics is a significant and helpful subject for advancement of any country. It is a gateway to innovation and success. Regardless of its significance and impact, it is a subject which usually scares the students of the elementary and secondary school levels. So, from the very beginning, the teaching of Math should be effective and logical. As attitude has key contribution in each learning cycle, so in mathematics its significance cannot be dismissed. Attitude has a lot of significance in accomplishment of math particularly at secondary level [1].

[2] expressed that the attitudes are essential for our existence as one has specific love or hate, like or dislike, anxiety or appreciation towards a specific item or object. It has been contended that attitudes are essential for human personality. Mathematics as a subject could likewise be cherished, dreaded, loathed or disdained like some other subjects [3]. Education could be connected to attitudes that learner has regarding the particular subject, which suggests the solid collaboration among emotional and mental perspective [4].

Attitude is a focal point of human personality. On daily basis, individuals love, hate, agree, disagree, favor, oppose, contend, convince and so forth. These all are evaluative reactions to an item or object. So, attitude can be characterized as a summary evaluation of an object of thought. They are tendencies and inclinations that control a person's conduct and convince to an activity that can be assessed as one or the other- positive or negative. Attitude keeps on developing and changing with the passage of time and it affects individual's advancement, accomplishment, profession and way of life [5]. Attitude of the students in studying mathematics is not only a worry for specific nation; it has become a worldwide worry for many years. The information on Math has much importance in today's era. To defeat the challenges which we face in our daily life, one can make full use of it to overcome such challenges. Because of this, in school educational plan, Mathematics has been considered as core subject. The students' attitude towards Mathematics is a significant factor which has duly been considered time and again. It has both negative as well as positive impacts on the students in achievement of Mathematics [6]. Now just place the cursor in the paragraph you would like to format and click on the corresponding style in the styles window (or ribbon).

2 Literature review and hypothesis development

Math has become a fundamental part of everyday life in the twenty-first century. Math is often regarded as the "Mother of All Sciences." Any scientific subject would be hard to imagine without Mathematics. Reading, writing, and arithmetic are the three R's of Mathematics. Every student should have particular aims and objectives during his or her daily life. Math is a tool for achieving these objectives. Each stage of education is significant in its own way. Math achievement in phase two, particularly in grade X, is a requirement for higher academic progress. In the present day, Mathematical success is a critical component of scholastic success. It is vital for success in a variety of fields [7].

Attitudes relate to assessments of people, groups and other kinds of things in our social world. Attitudes are important field of study because they influence both the way we see the world and the way we behave. In our everyday lives as humans, whether or not we enjoy something, it often determines our actions. Our attitudes, likes and dislikes have a significant impact on our personality and conduct [3]. Researchers have noticed that the concept of Mathematical attitudes is unclear (Bragg, 2007). Attitude refers to the positive or negative level of emotion associated with a topic. According to this perspective, Mathematical attitudes are a direct or indirect emotional tendency towards mathematics [8].

The concept of a positive or negative attitude on Mathematical attitude is clearly determined by the attitude's description. A 'positive' attitude is defined as emotionally strong character towards a subject; a 'negative' attitude is viewed as a negative emotional aspect towards the subject. When deciding a composite (or diverse) interpretation, it is unsure what a "positive" attitude should imply, but only referring to the magnitude of emotions reduces the number of variables to consider, as we must consider three components: emotions, beliefs (behavior) and their interconnections [9]. What tends to happen is that in many studies, the definition of 'positive'/'negative' attitude, is not clarified. The researcher's tools end up being undecided between the multiple definitions within a single study.

Students' views towards Math are correlated to their entire attitude toward solving problems [10]. They further said that negative attitudes should be overcome so that pupils may not develop poor problem-solving skills later in life. It is essential to have problem-solving abilities because they are vital in coping with our daily life problems successfully. If students are to succeed, they must develop problem-solving abilities with a positive frame of mind. Students who have a good attitude towards Mathematics are more likely to succeed [11].

Students with a high amount of patience will not give up until they have found the answer and will continue to work on the problem until it is solved [12]. According to her findings, pupils lack the patience to read and comprehend the questions given. As a result of her research, it appears that patience in problem-solving is necessary for good Mathematics results.

Students' dedication to Math relates to their eagerness to understand mathematics, their belief in their capacity to succeed in math, and their emotional responses to it. The devotion of students to Mathematics is crucial in building math abilities and knowledge [13]. As a result, self-esteem in solving problems is thought to play a significant part in Mathematical achievement and could be one of the elements determining students' achievement in Mathematics. People's assumptions of their own abilities to perform well on a task are a reasonable indicator of whether or not they will attempt, how much effort they will put in, and how perseverant they will be while facing adversity. According to previous research, self-study is applied in achievement of exams in a variety of academic disciplines, but the main focus is on Math ability [14]. To achieve maximum performance, students must have confidence in their Mathematical learning and problem-solving abilities [15]. As a result, it is reasonable to conclude that self-esteem significantly influences the Mathematical performance.

Students having favorable attitude toward Mathematics will be more successful in life [15]. As a result, dedication in solving problems is considered to have a great impact in Mathematical achievements. When compared to medium and weak students,

high achievers are more able to solve Mathematical tasks [16]. Highly successful students show a strong commitment to solve problems [12].

The most prominent mathematical approach of the past several decades [17]. The study of variations in men and women's attitudes towards Mathematics, as well as their influence on performance, is the foundation of this scale. This scale has undergone significant research and translation into other languages, and has been altered for usage in a number of contexts. The Attitude towards Mathematics Inventory (ATMI), developed by Tapia and Marsh is unquestionably among the most commonly used tools for measuring Mathematical attitude. Its final version contains 49 items that try to investigate six dimensions of these attitudes: Anxiety, Value Performance in Mathematics, Satisfaction with Mathematics, Parental Motivation and Expectations, and Teachers' Expectations are the key factors to be considered in this regard [17].

Several studies have found that children who have a positive attitude towards Mathematics are more likely to succeed in Math. Gender can influence one's attitude [18]. Conversely, they discovered that students' success in Math is determined by their attitude towards the subject. The achievement of students in Mathematics is determined by their attitude towards the subject [19]. As a result, it was discovered that pupils who have a favorable attitude about Mathematics do better, whereas those who have negative attitudes perform poorly. Students who have a good attitude towards Math are more likely to succeed in Math. The foundation for advanced Mathematical study is a grass root attempt to establish a Mathematical attitude [20].

Different attitude-related factors will also influence students' performance in Mathematics. As a result, attitude may be associated to performance in Mathematics. Different studies in various nations have yielded different conclusions about the relationship between attitudes and Mathematical success. It is argued that students' attitudes affect their Mathematical achievement [16]. These studies have emphasized various aspects. Self-confidence is a key element in obtaining mathematical success [21]. Whereas self-concept is a crucial component of attitude towards performance [16]. motivational elements significantly influenced the performance of students [22]. In a separate study conducted in Nigeria, achievement in Maths was associated to motivation with the most inspired students exceeding the least motivated [23]. Intrinsically motivated black children in the United States demonstrated a significant improvement in achievement levels of Mathematics [19].

Some researches, however, have slightly different outcomes. According to [13] students' dispositions towards Maths are connected to their problem-solving abilities. The correlation between attitudes and Mathematical achievement is same [24]. This implies that when a learner did not secure good scores in Maths, he or she would have a negative attitude and a bad attitude could lead to a drop-in grades. It is claimed that higher cognition levels can enhance Mathematical performance, but it is also claimed that parents and teachers who influence students' views can improve students' Math ability [25]. Based on the above literature of the study following research hypothesis was framed:

H01: There is no significant relationship between the students' attitude and academic achievement of Mathematics among male and female students at secondary level in AJ&K.

In our day to day existence individuals and their activities are generally controlled by our likes, dislikes of a specific thing. The positive or negative reaction which reflects

our attitude is essential to one's personality as well as activities. Researchers noted that characterizing an attitude of the learner to Mathematics isn't implicit [3]. [26] described that attitude is the manner in which students behave and think. Attitude isn't static because it may change person to person. In another study the working meaning of attitude towards Math is considered. For that reason he adopted attitude as an inclination or a propensity to react in positive manner or in negative manner to a specific object or thought, individual or occurrence or an attitude or approach problem [27]. Further, learners' attitude towards Math could be seen or assessed through the learners' reaction towards the subject [8].

Students' attitude could develop because of teaching practice, curriculum response, and it might modify contingent if these are helpful for the students. There are many studies and researches focusing on students' attitude towards Math and also the connection among attitude and the students' performance [16]. Attitudes' effective component gives emotional responses; like or dislike, towards an object. For attitude towards Math, emotional part demonstrates feeling and emotions towards Mathematical subjects. Specifically, feeling indicates to the sensation of preferring or showing interest towards Math, or the sensation of disliking or lack of interest in Mathematics. Not only this, psychologists have recognized learning by three kinds that outline mentality dependent on emotional parts, specifically traditional conditioning, operant conditioning and observational conditioning [28].

Traditional conditioning refers to discovering and it happens through repetitive knowledge or experience with motivation and the environment. With regards to educating and learning Math, learners that were opened to different type of stimuli (like ideas, activities etc.) were supposed to develop attitudes towards Math. While associative learning is learning which depends on the conviction that a learner tends to practice and it results in constructive outcomes. It does not emphasize practices that cause negative impacts. For example, when any assignment of mathematics is done by students and they are rewarded for that, then they will infer such tasks as fun, as it motivates them to do more similar tasks [19].

Productivity Theory of Walberg indicates the nine components that must be thought of in order to improve students' emotional, behavioral and intellectual learning group. One of the components is aptitude variable which contains ability and enthusiasm of students. Students' inspiration is demonstrated by the beliefs that they can be able to learn Math, sensation of obligation to attempt the tasks of Math, finding math fascinating, persistence, and good disposition that when they solve assignment of Math, they are possibly going to apply suitable intellectual methodologies. Previous achievements are related with the belief of students that positive or constructive outcomes in past assessments will uphold their Math learning. The second group of components consists of those instructional or teaching practices that influence the math learning of the students, particularly amount and nature of instruction [29].

The amount of instruction is categorized by the measure of time that students spend in the classroom or outside school hours in learning Mathematics, for example learners figure out how to learn math or the feeling that they have short period of time to really deal with math assignments. The nature of teaching or instruction is shown by the amount or a degree to which the topic is clearer to learners, the presentation aspect that includes data association, utilization of language which is clear and justifiable.

Waldrip and Giddings expressed that irrespective of the fact that no factor can be appropriate in itself; the variables examined in the both mentioned groups are viewed as essential for learning of students [30].

Psychological environmental factor which consists of, environment of home, peer group, classroom or schools' climate and exposure of the students to the mass media. The Theory of Walberg is useful regarding factors impacting students' mentality (liking or disliking) towards Math and factors which influence their education and performances [29]. Elements that escort our conversation consist of: learners inspiration, previous achievements; quality as well as the quantity of guidance; home, schooling and friends; and mass media communication specially accessibility of PCs. Attitudes towards Math should be highlighted in learning and instruction procedure if advanced achievements of Math are to be figured out. Moreover, mathematical attitudes have eminently perceived as major contributing factor of an individual's prosperity and achievement [31].

On contrary, it was found that when students were snubbed or punished for not finishing mathematics assignments or task, they got associated to such tasks with unpleasant or hostile feelings, which demotivated individuals from completing a higher proportion of such tasks. Observational learning is when a person uses his or her judgments of other people's activities and outcomes to guide their own beliefs, feelings and actions. Observational conditioning mirrors that a person masters something by implication and learning of individual can occur at anyplace and at any time. With regards to instructing and learning Math, learners accept to frame attitude towards Math through the perceptions of different instructor's activities in the classroom, (for example, manner in which teacher tackle mathematics problems etc.) [12].

Various components of attitude towards Science and furthermore what these parts mean for student performance. Attitude is a focal piece of human character. On daily basis, individuals love, hate, similar to, despise, favor, go against, agree, disagree, contend, persuade etc. These entire reactions to an object are evaluative in character. As a result, attitudes can be viewed as a summary appraisal of an object's cognition [32]. Attitude towards Math as a positive or negative standpoint. As one learns a specific book or subject, a constructive or harmful outlook towards that thing or subject develops. This demonstrates that a positive attitude toward arithmetic can be acquired during one's education [33].

Attitudes could likewise create over the long haul in the knowledge of a subject, and these approaches will affect students' effectiveness and performance. An attitude develops in students because of a passionate response to the subject and in the long run this emotional response will in general be an automatic reaction to the object. The way that an attitude develops suggests that it can change anytime [34].

Students' achievements in Mathematics in secondary schools influentially affect their performance in colleges and universities and their career in future. Having a strong foundation in Mathematics assists students with creating refined points of view and bids further profession alternatives. The significance of learning of Mathematics has over and again been focused via teachers and legislators. Both instructors and parents have continuously focused on pupils' Mathematical skill and progress. Legislators have also called for improvement of overall performance of the students and narrowing achievement gaps of the learners [35].

Achievement in Math is inseparably connected to future career openings playing a major part in the level of the students' overall learning acquisitions, just as a solid standard to isolate students into scientific or scholarly streams. Likewise, attainment in Math can be an entry to compensated and high-status positions. Teachers and guardians perceive what elements impact their students' Math attainment and development, they will not be able to aid the learner to acquire considerable academic improvement. Instructors have relied on numerous sources of data; students' own experiences, history, cultural environment and parents' association are all factors that may affect their mathematical achievements [36]. Based on the above review of the related literature another hypothesis was established:

H02: There is no effect of students' attitude on Mathematical academic achievement at secondary level in AJ&K

Learners' accomplishment in Mathematics is a result of their home environment, attitudes toward Mathematics, Math curriculum, educational contexts and practices, and school characteristics that explain variances in learners' achievements [34]. Motivating students in the class has become a major challenge for teachers of all subjects, including Math [16]. School teachers must be well-versed in learner motivation and management in order to help students achieve success in Mathematics. Academic ac-accomplishment is usually measured in terms of cognitive abilities [27]. Although all three levels are equally necessary to apply in a classroom, schools frequently focus on the mental part due to standardized assessments or other regulations [37]. To promote academic engagement, it was found that cognitive, behavioral and emotional involvement are the essential components [10].

Azad Jammu and Kashmir is an under developed state where students face a lot of problems in their academic career. Due to the shortage of facilities and resources, students cannot accomplish their necessary degree of performance. In AJ&K, there is rising worry about the performance of students in mathematics, particularly at the secondary level. Learners' mathematical performance can be influenced by a variety of things. Historically, studying and teaching Mathematics was undeveloped, challenging, and only a few learners were encouraged to pursue Mathematics. Mathematics is a core subject in AJ&K curriculum. Due to its importance it was essential to find out the factors which were responsible for the success and failure of students in it. Attitude is a psychological behavior which greatly impacts the students' achievement and plays vital role in their success and failure. The basic purpose of this research was to discover the effect of attitude of students towards Mathematics and their Mathematical achievement. Research objective of this study was to analyze students' attitude in Mathematics at secondary level, to compare students' attitude and academic achievement in Mathematics (gender wise) in AJ&K and to find out the effect of students' attitude on achievement in Mathematics at secondary level in AJ&K

3 Research method

The research was descriptive and quantitative in nature. Survey method was used for collecting the data. Population of the study consisted of two strata made for boys and girls. For collecting data was the 1076 students from public sector high schools of

Tehsil Bagh AJ&K. Students of secondary level were the population of research study taken from source of District Education Office (Male and Female) of District Bagh AJ&K.

The study was delimited to Tehsil Bagh AJ&K. The sample was selected using a stratified random sampling technique. For this purpose, sample of respondents was selected according to the sample table of Krejcie and Morgan (1970). So, only 444 students (192 boys and 252 girls) were taken for the study.

A questionnaire was developed by the researcher. The purpose of the questionnaire was to check if students' attitudes towards Mathematics had an impact on their mathematical achievement in secondary school. The data were collected from the respondents using a 5-point Likert scale. Questionnaire consisted of 24 statements having 4 dimensions namely Confidence, Motivation, Importance and Anxiety. Each statement consisted of 5 options, in which students were asked to rate each statement based on Strongly Agree (SA), Agree (A), Neutral (N), Disagree (DA) and Strongly Disagree (SDA). Marks of Mathematics of 10th grade were taken for academic achievement.

After getting authentication of the questionnaire by three experts, pilot testing was conducted by distributing questionnaires to 25 students within the population but these students were not part of sample. The reliability of the instrument was found .826. Confidence had Alpha value of .693, Motivation had Alpha value of .718, and Importance had Alpha value of .710 as well as Anxiety had Alpha value of .923 respectively.

Researcher visited the schools personally to collect the data. After the permission from the school principals and headmasters, researcher distributed the questionnaire to the respondents. Researcher also guided the respondents regarding the questionnaire. Data from students was collected with the help of class incharge.

The Statistical Package for Social Sciences (SPSS) version 25.0 was used to analyze the data. To achieve the first objective of the research, Mean was used; to achieve second objective of the research, t-test was used and to achieve the third objective of the research, regression was used.

4 Data analysis

Mean, independent sample t-test and liner regression analysis was used to measure the comparison and effect of students' attitude towards mathematics on their mathematical achievement at secondary level.

Table 1. Mean scores of students attitude towards mathematics

Dimensions	Mean
Confidence	3.4081
Motivation	3.2397
Importance	2.9817
Anxiety	3.4275

Table 1 shows the mean scores of confidence M = 3.4081, motivation M = 3.2397, importance M = 2.9817 and Anxiety M = 3.4275. The table also reveals that the anxiety had high mean score as compared to other dimensions of attitude.

Table 2. Comparison between attitude of male and female students

Gender	N	Mean	SD	df	t	Sig.
Male	192	3.4081	0.458			
				442	6.992	.000
Female	252	2.9817	0.382			

Table 2 shows the difference between Mathematical achievement of male and female students measured using an independent sample t-test. According to table, there was significant difference between the importance of male and female students' attitudes. The score of male was; N = 192, M = 3.4228, SD = 0.458, and scores of female were; N = 252, M = 3.1434, SD = 0.382 whereas t(442) = 6.992 and p = .000<0.05. Result illustrated that male students had higher attitude in mathematics than the female. Moreover, null hypothesis was rejected regarding gender.

Table 3. Comparison between attitude of male and female students

Gender	N	Mean	SD	df	t	Sig.
Male	192	3.1771	1.286			
				442	.278	.941
Female	252	3.1429	1.285			

Table 3 shows the difference between Mathematical achievement of male and female students measured using an independent sample t-test. According to table, The score of male was; N = 192, M = 3.1771, SD=1.286, and scores of female were; N = 252, M = 3.1429, SD = 1.285 whereas t(442) = .278 and p = .941>0.05. So, there was no significant difference between male and female students' mathematical achievement. Furthermore, null hypothesis was accepted regarding gender.

Table 4. Regression analysis of confidence and mathematical achievement

	Regr. (R)	Regr. (R) Square	B	Beta	t	Sig.	Std. Error	F
Confidence	83	0.688	0.161	0.059	5.881	0.000	0.129	1.561

Table 4 shows regression analysis to determine the contribution of student confidence (independent variable) in predicting the Mathematics achievement (dependent variable). Additionally, the correlation R was .83 and the R-square was .68 showing 68% of the variance in confidence significantly represented by the Mathematical achievement. The value of ß = 0.059 showed the slope and t = 5.881, p < 0.05 described that confidence was found to be significant predictor and had positive impact on mathematical achievement.

Table 5. Regression analysis of motivation and mathematical achievement

	Regr. (R)	Regr. (R) Square	B	Beta	t	Sig.	Std. Error	F
Motivation	0.85	0.722	0.158	0.085	9.063	0.000	0.088	3.201

Table 5 illustrates regression analysis to define the contribution of student motivation (independent variable) in predicting the mathematical achievement (dependent variable). Additionally, the correlation R was .85 and the R-square was .72 showing that 72% of the variance in motivation was significantly represented by the mathematical achievement. The value of ß = 0.085 showed the slope and t = 9.063, $p < 0.05$ referred to motivation which was found to be significant predictor and had positive impact on mathematical achievement.

Table 6. Regression analysis of importance and mathematical achievement

	Regr. (R)	Regr. (R) Square	B	Beta	t	Sig.	Std. Error	F
Importance	0.79	0.624	0.008	1.257	10.276	0.000	0.102	3.243

Table 6 shows regression analysis to determine the contribution of student importance (independent variable) in predicting the mathematical achievement (dependent variable). Additionally, the correlation R was .79 and the R-square was .62 which shows that 62% of the variance in importance was significantly represented by the mathematical achievement. The value of ß = 1.257 showed the slope and t = 10.276, $p < 0.05$ described that importance was found to be significant predictor and had positive impact on mathematical achievement.

Table 7. Regression analysis of anxiety and academic achievement

	Regr. (R)	Regr. (R) Square	B	Beta	t	Sig.	Std. Error	F
Anxiety	0.73	0.532	0.203	0.103	7.542	0.000	0.094	4.735

Table 7 illustrates regression analysis to define the contribution of student anxiety (independent variable) in predicting the mathematical achievement (dependent variable). Additionally, the correlation R was .73 and the R-square was .53 which shows that 53% of the variance in anxiety was significantly represented by the mathematical achievement. The value of ß = 0.103 showed the slope and t = 7.542, $p < 0.05$ identified that anxiety was found to be significant predictor and had positive impact on mathematical achievement.

Table 8. Regression analysis of students attitude of mathematics and mathematical achievement

	Regr. (R)	Regr. (R) Square	B	Beta	t	Sig.	Std. Error	F
Students Attitude	0.89	0.792	0.063	0.086	5.112	0.000	0.035	3.299

Table 8 shows regression analysis to determine the contribution of students' attitude of mathematics (independent variable) in predicting the mathematical achievement (dependent variable). Additionally, the correlation R was .89 and the R-square was .79 which shows that 79% of the variance in attitude was significantly represented by the mathematical achievement. The value of ß = 0.086 showed the slope and t = 5.112, $p < 0.05$ described that student attitude of mathematics was found to be significant predictor and had positive impact on mathematical achievement. Moreover, null hypothesis was rejected.

5 Discussion

The purpose of this research was to determine the Effect of Students' attitude about Mathematics on their Mathematical Achievement at Secondary School Level. The current study's findings revealed that students' attitudes towards Mathematics had a significant impact on secondary school mathematical achievement.

According to first hypothesis, there was no significant relation between the students' attitude and academic achievement of Mathematics among male and female students at secondary level in AJ&K. Attitudes could be seen as more or less positive. Some studies reported significant differences when we compared girls and boys' attitudes towards Mathematics [38, 39] Nevertheless, there are a number of studies where these differences are not identified [3, 26, 40, 41]. Contrary to the study it was posited that male students performed better in Mathematics [42–44]. On the other hand had higher achievements than male counterpart in mathematical subject [45, 46]. Female students had better success motivation than male students. Such strong accomplishment drive will affect the formation of a favorable attitude toward mathematics, which will ultimately influence female students' high levels of mathematics success [26]. The result of the study implied that both male and female students had almost the same achievement in statistics because there is no significant difference in their achievement grade Even though gender variations in attitudes towards mathematics had no effect [47].

The findings were similar to that of a study conducted in Jakarta whose main goal was to investigate the impact of students' attitudes toward mathematics on their mathematical achievement in high school. The findings revealed a strong relationship between students' attitudes towards Mathematics and their Mathematical achievement [48]. The results of another study conducted in Pakistan was similar to the results of the current study. The findings of their study revealed that confidence was the most important factor in students' attitude towards Mathematics, and that it had a significant influence on their grades [18]. Students' attitude towards Mathematics was characterized as the emotional response to Mathematics, whether positive or negative, confidence in one's ability to succeed in Mathematics, and techniques for dealing with Mathematical issues [6]. Previous researches on Mathematics found that attitude toward Mathematics played an important role in determining learning achievement in Mathematics, with students who had positive attitudes toward Mathematics performed well [4, 6, 17, 47]. Nonetheless, the research revealed that many children had negative views toward Mathematics.

6 Conclusions

Anxiety had high mean score as compared to confidence, motivation and importance regarding the students' attitude towards mathematics. It means that students feel anxiety when they are going to study mathematics. It is further concluded that male students had higher level of attitude towards mathematics than the female students at secondary level. It is because of male students are more curious towards calculations and engineering that is way they feel comfortable to study mathematics. On the other hand, there was no significant difference found in mathematical achievement between male and female secondary school students. It means that male students are keener and more interested towards mathematics but their achievement in mathematics are equal.

It is concluded that student attitudes' parameters like confidence, motivation, importance and anxiety towards mathematics had a significant positive effect on their achievement in Mathematics at the secondary level in AJ&K. all the parameters had a strong relationship with mathematical achievement. Furthermore, all the parameters of students attitude predict that they will remain intact in future regarding the interest of students towards mathematics but confidence and motivation will contribute more instead of importance and anxiety because if students have better confidence and motivation level they will take interest to learn difficult concept like mathematics.

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