Exploring Factors Contributing to Indifference Towards Learning Mathematics Among Secondary School Students in Nepal

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Abstract: Mathematics is a compulsory subject at the school level in Nepal, deemed essential for everyday life and higher studies, particularly in the fields of science and technology. However, there is a noticeable apathy among students when it comes to learning mathematics. This qualitative research aims to identify the factors that contribute to this indifference towards learning mathematics. Data was collected through in-depth interviews with four participants from both public and private schools, all enrolled in the tenth grade. Analysis and interpretation of the data revealed several factors that lead to this indifference. These factors can be classified as student-related, school-related, and home and society-related. Student-related factors include mathematics anxiety, negative perceptions, insufficient effort, poor academic achievements, limited real-world applications, low self-efficacy, and perpetuation of misconceptions about mathematics. School-related factors encompass teaching practices, teacher qualifications, traditional methods focused on rote learning, impractical curriculum and courses, inadequate school administration, and subpar physical facilities. Home and society-related factors have a negative effect on mathematics engagement, such as unfavourable home environments, low socioeconomic status, and parental education. Together, these factors contribute to the observed indifference towards learning mathematics.

Keywords: Indifference, Qualitative, Mathematics, Factors, Home, Students, School

1. Introduction

Mathematics holds paramount importance worldwide, being regarded as the quintessential discipline. Often referred to as the science of all sciences and the art of all arts (Pandit, 2007), it stands as a cornerstone of human knowledge. The significance of mathematics in our lives cannot be overstated; without its comprehension, nothing would be achievable. Throughout history, from ancient times to the present, mathematics has consistently been acknowledged as a vital component of formal education (Acharya, 2017), earning a pivotal position in school curricula worldwide. Its indispensability extends beyond everyday life to encompass advanced studies in science and technology, solidifying its distinction as the queen of science (Burton, 2003). Recognizing its far-reaching influence, mathematics has emerged as a fully-fledged academic discipline. However, in contemporary times, students demonstrate a concerning lack of enthusiasm towards learning mathematics at all educational levels, ranging from elementary school to college. Khanal (2015) posited that student in Nepalese secondary school's encounter difficulties in comprehending, exploring, and generalizing mathematical concepts, resulting in a remarkably high failure rate in mathematics examinations. Regrettably, a significant number of students struggle with the study of mathematics, presenting considerable challenges. The performance of students in mathematics during the School Leaving Certificate (SLC) examinations is disheartening, evident from the average score of 27.57 and a pass percentage of 41.21 (Ghimire, 2010).

In the context of Nepal, a significant number of SLC students drop out or fail in mathematics. The level of achievement and scores in mathematics lag those of other subjects (MOE, 2015). Additionally, according to a report by the Education Review Office (ERO) in 2013, SLC dropouts encounter difficulties in Mathematics, English, and Science. The statistics further reveal that the failure rate in mathematics stood at 29.62% in 2010, escalating to 38.79% in 2011 and reaching 42.09% in 2012. These figures clearly demonstrate that a considerable proportion of SLC students struggle to succeed in mathematics. Another ERO report in 2017 disclosed that the average grade VIII mathematics score had declined from 50.8 in 2015 to 49.2 in 2017. Year after year, there is a downward trend in math learning achievement. In fact, 59% of students perform at or below the basic level in mathematics, indicating a low level of competency. Furthermore, as per the ERO (2019), less than 32% of students meet competency in class 8. The report also highlights a significant proportion of students underperforming in school-level education, particularly in mathematics. The failure and dropout percentages in mathematics surpass those of other subjects, reflecting a general indifference towards learning mathematics. These issues necessitate an in-depth study of the factors contributing to students' indifference towards mathematics learning.

According to Rameli and Kosnin (2017), students' performance in mathematics is a significant concern within mathematics education. However, many students perceive mathematics as a challenging subject to grasp. Factors such as students' attitudes, interests, and teaching methods contribute to lower academic outcomes and students' indifference towards learning mathematics, highlighting the influence of students' perception s on their approach to the subject (Jumadi & Kanafish, 2013). The way mathematics is perceived by students is crucial for effective learning and teaching. The school system, family background, and students' overall attitudes towards school collectively shape their perspective on mathematics (Pontian, 2018). Perception plays a pivotal role in mathematics learning, as it influences students' indifference or engagement in the subject. Lamb and Fullarton (2002) examined interconnected factors that impact mathematics teaching and learning, encompassing personal, classroom, and school-related elements. Personal factors encompass beliefs, attitudes, readiness, and willingness to learn. Home factors include socioeconomic status, parents' educational background, and occupation. School factors encompass aspects such as the physical environment, availability of learning resources, and teaching and learning strategies. In a study conducted by Joshi (2017) on students' attitudes towards mathematics, it was found that most students held a positive attitude towards mathematics. However, they faced numerous challenges, including a lack of confidence, mathematics anxiety, inadequate qualifications of guardians, unfavorable home environments, social discrimination, a shortage of trained teachers, and a lack of teaching materials and necessary physical facilities (Poudel, 2020) These factors significantly affect students' attitudes towards mathematics.

In their study, Panthi and Balbase (2017) shed light on the teaching and learning issues surrounding mathematics education in Nepal. They identified several factors that influence teaching and learning, including social and gender issues, achievement issues, cultural factors, and technological challenges. Addressing these issues is crucial for promoting effective teaching and learning practices that lead to better mathematics achievement. Another study conducted by Rustom and Remali (2016) delved into the challenges faced in mathematics learning. They identified various factors contributing to these challenges, such as self-related factors (negative perceptions and self-regulation), teachers (behaviors, practices, and characteristics), parents (limited cognitive, emotional, and financial support), friends (negative attitudes, behaviors, and lack of support), and other factors (the nature of mathematics and assignment pressures). Moreover, Kumar (2021) argued that low-performing students had a negative perception of mathematics, which had a greater impact on their performance. The students who performed better academically had a more positive outlook on math, while the students who performed less well had a negative outlook. However, the majority of students understood the importance of mathematics.

Similarly, Pontian (2018) conducted a qualitative study exploring factors that influence students' perceptions of mathematics. The research identified seven key factors affecting students' perception, including difficulty comprehending mathematical concepts, teachers and teaching methods, learning materials, family background, self-confidence, language barriers, and assignment pressures.

Although there have been numerous studies on mathematical anxiety and attitudes towards learning mathematics, there is a dearth of qualitative research investigating factors that contribute to students' indifference towards learning mathematics from the school level to the university level in Nepal. In light of this gap, this study aims to explore the factors that contribute to students' indifference towards learning mathematics.

Objective of the study

The primary objective of this research paper is to investigate and identify the factors that contribute to students' indifference towards learning mathematics. By examining these factors, the study aims to shed light on the underlying reasons for the lack of interest and motivation among students in the field of mathematics education. Understanding these factors will provide valuable insights for educators, policymakers, and stakeholders in devising strategies and interventions to address the issue of indifference towards learning mathematics and promote a more engaging and effective learning environment for students.

2.1 Research Question

What are the key factors that contribute to students' indifference towards learning mathematics?

Research Methodology

This study employed an interpretative research paradigm with a qualitative approach using a narrative research design to analyze the participants' experiences, pain, pleasure, and attitudes towards learning mathematics. Purposive convenience sampling was used to select four students from two schools, with two participants from each school. The researcher established contact with each participant, introduced the research, and conducted in-depth interviews. During the interviews, the researcher took notes and recorded the conversations with the participants.

The interviews were transcribed, coded, and used to construct narratives regarding the participants' indifference towards learning mathematics. The data was categorized, compared, and analyzed descriptively to gain meaning in relation to the research objective. The research was conducted with care and respect for the participants, creating a friendly and relaxed environment during the interviews. Pseudo names were used to protect the participants' privacy. An interview protocol was utilized to guide the interviews, and the researcher analyzed and compared the four cases based on the themes identified in relation to the factors influencing indifference towards learning mathematics. The analysis was conducted in a descriptive manner, focusing on meaning-making in alignment with the research objective.

3.1 Discussion and meaning making.

The research aimed to explore the factors that contribute to indifference towards learning mathematics. The data for the study was collected through interviews with students, and the findings were presented in the form of narratives. Four student narratives were analysed and compared to identify the themes related to each student's understanding and experiences regarding indifference towards learning mathematics. These narratives provided valuable insights into the factors influencing students' lack of interest and motivation in the mathematics subject.

3.1.1 Bhagwati's Story

I met Bhagawati on May 4, 2023, to discuss the purpose of the study and interview protocol. I asked her to share her experiences of learning without hesitation. She said,

"*In class 6,7,8, I used to achieve 1st division but in class 9 and 10, I just got pass marks in mathematics. Up to class 8, mathematics was not so hard but after class 8, this subject seemed hard, and I started to lose interest in Math's. Remembering formulas was difficult for me. We also had to study one more mathematical subject in class 9 which was optional Math's. Optional math's required many formulas and theorems which seemed difficult for me. Similarly, the way our teacher taught us was also not satisfactory. Many students would not understand the equations easily and whenever the students asked many questions, instead of describing them, he used to get angry. Because of this, I was really scared to ask them any questions. He just used to explain the process once and it was hard to understand the method in a single explanation. This created a kind of dislike for mathematics. Moreover, it was fun to solve problems and find correct answers but when the answers were wrong, it gave me some kind of disappointment. Once in geometry class of grade 9, I was facing difficulty in constructing triangles, I asked my teacher, but he got angry and told me that it was my fault because I was not concentrating. I felt bad and I didn't want to stay in class after that*".

We discussed the application of mathematics. She said,
"*Mathematics is an applicable subject which is useful in daily life. However, I feel that mathematics is boring and not applicable in their daily lives. I don't like their mathematics teacher because they get angry quickly. Additionally, there is no one to teach them mathematics in their home and their teacher doesn't explain properly while solving problems".*

Then, we discussed home and social sources related to mathematics. She said,
"I had difficulty learning mathematics at home due to their uneducated parents, small siblings, and shop in their house".

Hence, Bhagwati was indifferent to learning mathematics due to low mathematics achievement, teacher behavior, teaching methods, home environment, math myth, and self-efficacy.

3.1.2 Pawan' s Story

Similarly, I met Pawan on May 8, 2022, to discuss the purpose of the study and interview protocol, to discuss his indifference to learn mathematics. He said,

"*I always got average marks in mathematics. I used to obtain average marks during the 8th, 9th, and 10th grades. There were times when I also got better marks and I used to get compliments from my parents*."

After that, we discussed his interest in mathematics. He said,

"*I like Science and English, but Math is not an easy subject for me due to the need for more practice and formulas. Additionally, the I had to study optional mathematics due to their parents and friends telling them to read it. When I was in grade 8, optional mathematics would be an easy subject like compulsory mathematics, but now I realize that it is not as easy*".

We talked about the application of mathematics in practical life. He said,

"*Mathematics is applied in practical and daily life. Math is used to measure the area of the place and things. I have also calculated the area, the height of the furniture and used mathematics in the shop for buying and selling purposes. When did I ask him if he has any experience of leaving the classroom while studying mathematics? similarly, He said, "I haven't left the classroom till now but sometimes I couldn't understand the lesson while studying the optional mathematics subject when I ask questions to our teacher, he didn't answer me properly then I left that question. My favourite subject is English because I used to obtain excellent marks in English*". Then I told him to tell the reason behind his disinterest in math. He said, "*Although I study hard, I can't grasp the ideas and solve the problem. Getting fewer marks in math subjects is also another reason for my disinterest in mathematics. The teacher scolds us if we make any sort of mistake. It requires more time to solve the promustf mathematics and if we can't solve the problem, we have to start from the beginning*".

After that, we discussed the challenges that hinder his study and distract him while learning mathematics. He said, "*math subject is not an interesting subject. We need to rote the formulas"*. I asked him if he had any experience of his math teacher not being able to solve the question during his class and left the class without solving the question. He said,

"Yes, it was the day before the exam and the teacher was solving one question of theorem but couldn't solve the problem and left that question. He tried a lot to solve it but he couldn't solve it. Unfortunately, the same question appeared in our exam, and we couldn't solve it. We shared this with our teachers, and they told us not to worry. Then, we discussed challenges towards learning mathematics. He said, "*Teachers should teach logically and understandable way rather than focusing on formulas. Teaching should be related to exiting cognitive structure of the students*."

Finally, we discussed his family and society's impact on his study. He said,
"*My parents and sister encourage me to study mathematics, providing manual books and practice books, and helping me to arrange my books. There is no disturbance in learning mathematics by society and my family*".

Similarly, when I asked, why did you select optional mathematics in grade nine? Is there are pressure from your family and your society?". He replied, "*Yes. Mathematics was recommended by teachers and parents, but now the I feel it is a difficult subject*."

From Pawan's story, I conclude that He was indifferent toward learning mathematics due to low mathematics achievement, teacher behaviour, teaching methods, math myth, and low self-efficacy.

3.1.3 Santosh's Story

On May 15, 2023, I met Santosh near his house in the park and discussed indifference towards learning mathematics. We began our conversation with demographic information and interview questions seeking information for indifference. I had already told him about my purpose for the meeting. He said,

"*I used to get good marks in classes 6-10, often over 90. They were inspired by their relatives, parents, and teachers to focus on mathematics. When they got 98 marks in mathematics, they were happy and showed it to their father, who was very happy*".

We discussed his interest in learning mathematics. He sincerely answered,

"*I like mathematics because it is interesting and fun to solve problems. In my school, there are two types of optional subjects: optional mathematics and language subjects. I chose optional mathematics because I am good at math but weak at language. I enjoy solving mathematics problems more than reading other subjects*".

I asked about the application of mathematics with him. He said,
"*Mathematics is an applicable subject. I like mathematics but I don't know where it is used. I want to learn mathematics and I am learning mathematics just because solving the problem is fun, but I don't know where it is used." It means he is good at mathematics, He liked mathematics just because solving problem fascinates him, but he didn't know where it was used in daily life*".

Again, we discussed the teacher at his school, and he said,
"*Once I got 92 marks in mathematics and my teacher was very happy. He added it was really fun checking your copy. Similarly, in my school, in class 10 students are divided into groups according to their marks. Our mathematics teacher wants us to read well and he doesn't give his focus only to one student rather he pays attention to each of us. My teacher gives us interesting questions and also give us tough questions and organize competition in the class which is so much fun. Sometimes in our class, whenever my friends make any mistakes, he counsels them. Our teacher only punishes the students if they commit a big mistake otherwise, they counsel us. And when the teacher punishes us, I become really scared"*.

Then, we talked about the teaching method in school. He said,
"*Mathematics should be related to the daily life of people and students should be taught more clearly. In school, teachers only teach the formula and don't explain how and why the formula is applicable. Students are scared of their teachers and don't ask questions, so they don't discuss the difference between math and other subjects*". Similarly, He said, "*Teachers of science, English and other subjects teach us practically, but math teacher doesn't practically teach us. He just teaches us the formula and gives one example, but he never explains it in detail. Social is my favourite subject because it is related to daily life and history which I find very interesting. In a mathematics class, I and my friends discuss a lot with each other's and find new ways to solve the problems, but our teachers tell us that we can't solve them in a new way otherwise we will get fewer marks in SEE*".

Also, we discussed the school administration. He said, *"School administration focuses more on social studies than mathematics due to the high number of students who fail in social studies. However, in mathematics, students have to rote answers and can easily get good marks. This is due to the expectations of parents, teachers, and school administration*. "Similarly, He said, "*The challenges towards learning mathematics are: lack of practical methods of teaching and learning, remembering the formulas and, not teaching the basic concept of mathematics*." Then we started discussing home and society and I asked him if he had sufficient time to study mathematics. He said, "*Yes, I have enough time to study mathematics, even if I don't have it. My parents also help me by providing me with the necessary materials. I don't think society or environment affects me, instead I get support from everyone*".

Hence, Santosh is a brainstorming boy who has self-confidence, is a high achiever, and is interested in learning mathematics due to his good home environment.

3.1.4 Kristina's Story

On May 17, 2023, a researcher meets Kristina and asked her to share her experience of learning mathematic. The researcher had already told her about the purpose of the meeting Then, I started to discuss her mathematics achievement until now. She said that '*Up to class 6, my mathematic marks were good but after class six my marks were that not that good and I just got pass marks. I feel bad for not achieving good marks in mathematics because my parents scolded me because of the poor result*". Again, we start discussing her interest in learning mathematics.

"*I don't like to study mathematics. I am not interested in mathematics. I feel that it is harder than other subjects. I don't understand mathematics. Similarly, I didn't choose optional mathematics in class nine because I felt taking another math subject would be very difficult for me, so I took environmental Sciences as an optional subject. I never received good grades in mathematics that is the reason why I felt that optional mathematics would also be hard for me*".

Furthermore, she said,

"*Mathematics is difficult to learn, and I feel discouraged by my math teacher who scolds me for not achieving good marks. I don't like mathematics because it has formulas that are not used in other subjects. When the class is over, I feel relaxed*". Similarly, she said "*Mathematics is an applicable subject, but the teacher's approach is unclear and does not address the student's needs and the teaching style of the social study teacher is more interesting, but the mathematics class is boring due to lack of group interaction and discussion*".

Again, we discussed the challenges and barriers toward learning mathematics for her. She answered,

"*The main barrier is that our teacher doesn't motivate and doesn't give basic concepts of mathematics before teaching the topic." After that, we discussed her home and social source. She said, "I have sufficient time to read mathematics at home and I like to read in school rather than at home because my friends help me to solve problems while I am at school. My parents live in Japan, and no one can help me help in learning mathematics at home*."

Hence, Kristina has indifference toward learning mathematics due to her teacher's behaviour, teaching methods, home environment, low mathematics achievement, math myth, and self-efficacy.

With their accounts of the lack of interest in learning mathematics, I proposed four narratives. In this case, I have established the themes to address my study objective from narrative and meaning making connected to elements that contribute to indifference, such as personal factors, school factors, home factors, and societal factors.

3.2 Personal related factors

Interest in mathematics is determined by beliefs, altitudes and emotions. Without student's interest, there is no possibility to achieve knowledge. Five sub themes were developed to analyse and interpret data, such as mathematics achievements, mathematics anxiety, application of mathematics, self-efficacy and math myth.

3.3 Mathematics achievements

Students' mathematic achievement is related to their need, interest, practice and seriousness in the subject matter. Bhagawati and Pawan obtained good marks in primary and lower secondary level, while Santosh took optional mathematics and obtained 90 over marks. Kristina obtained good marks in primary and lower secondary level, but their marks decreased in class nine and ten. Higher mathematics achievement developed interest towards learning mathematics, while lower mathematics achievement developed disinterest.

Mathematical anxiety

Mathematics anxiety is a bad emotion that interferes with the learning process. Santosh has positive attitudes towards learning mathematics, believing it is interesting, enjoyable, practicable, thinking, and brainstorming. Kristina was a private school student who did not like learning mathematics, obtaining low marks and not liking the teacher and teaching strategy. In the same way, Bhagwati is public school students, and they didn't like to learn mathematics. They felt that mathematics was boring, uninteresting and hard subject. Those views reflect that they had developed math anxiety and develop indifferent towards learning mathematics. Personal feeling, belief and attitude are related to perception. Hence negative perception developed math anxiety. Due to mathematic anxiety, students were indifference toward learning mathematic. Bhagawati, Pawan, and Kristina disliked mathematics. They thought mathematics was a difficult subject. Mathematics is a tedious subject. They stated that mathematics is an uninteresting subject because their teacher is unfriendly and does not teach well. Mathematics had excessively long formulas that were difficult to remember. The teacher had not taught the fundamental concepts of the mathematical topics. As a result, they had not understood the importance of learning mathematics. As a result, they perceived mathematics to be a boring and difficult subject. As a result, they developed mathematic anxiety, but Santosh thought mathematics was really funny and interesting. He thought that learning mathematics was fun. When students learn mathematics, they experience stress and tension, which leads to mathematical anxiety and indifference toward learning mathematics.

3.5 Mathematics connected to real life,

All of my participants agree that math is a useful subject and is used frequently. Bhagawati performed calculations in the store using math. She calculated loss and profit using math when she was buying and selling. She was unaware of the application of the optional math theorem in her day-to-day activities. In a similar vein, Pawan employed mathematics when buying and selling goods. In a similar vein, Santosh and Kristina stated that they were unaware of any practical applications for mathematics but speculated that it might be a useful subject. All of the participants in my study argued that real-life situations were not reflected in the current mathematics curriculum, courses, or teaching methods. They believed that only arithmetic calculations were used in practical circumstances. My research participants had a negative perception towards learning mathematics due to the lack of practical teaching materials and problems related to daily life. This led to them feeling that mathematics was not applicable, difficult and boring, leading to them being indifferent towards learning mathematics.

3.6 Self-efficacy

One of the key student-related factors in learning mathematics is self-efficacy. The ability of an individual to have a significant impact is referred to as self-efficacy (Flammer,2001). Kristina, Bhagawati, Pawan reported low confidence in learning mathematics as they felt that mathematics is difficult to learn because they believed only talented students can learn mathematics which showed low self-efficiency. Bhagawati, Pawan, and Kristina had developed low self-efficacy due to traditional teaching method, teacher's behaviour, mathematics curriculum, low mathematics achievements and need of more practice to remember formulas. They felt mathematics was uninteresting, boring and difficult subject and their confidence level towards learning mathematics was decreased. Due to those reasons, they had developed negative perceptions towards learning mathematics. Santosh had thought about the mathematics problem for solving why and what in mind. Santosh achieves high in mathematics. He is confident and have strong beliefs in their capacity. Their perception of ability or self-confidence is significant in arbitrating the craft of mathematic achievement. In this regard his self-confidence develops the self-efficacy towards learning mathematics. Hence, they developed self-efficacy and positive perception towards learning mathematics. Hence self-efficacy helps to students developed interest toward learning mathematic.

3.7 Math myths

Math myths is a one of the important aspects of student's related factors in learning mathematics. Math myth is negative views about mathematics. My participant Bhagawati, Kristina, Pawan viewed mathematics as difficult subject, abstract and uninteresting subject, answer oriented subject, rote memorizing, formula oriented, teacher depended, mark oriented, plasticize, content and question-oriented subject. Those views about mathematics are math myths. Due to math myth, my research participants developed negative perception toward learning mathematic and students are indifferent toward learning mathematics. But Santosh argued some comprehensive views about mathematics such as mathematics is easy subject, enjoyable, interesting, thinkable, creative and linkable subject which develop interesting toward learning mathematics.

3.8 School related factors

School factors indicate school environments such as teachers, teaching method, physical facilities, school administration, and classroom management, the following themes emerged from the narrative of the respondents.

3.9 Teacher

Teacher was sub theme of school related factor. I think eighty percent teaching learning process depends on teacher. From Bhagawati's story, it is clear that Bhagawati didn't understand the way of teachers' teaching style, and teacher's behavior. From Bhagawati's story, it is observed that math teachers in these schools are following a restrictive environment, discouraging attitudes, and discouraging teaching approaches. The same case is reflected in Pawan's story; he did not want his teacher to find out his mistakes so that he can avoid the teacher's anger. Such behavior from his teacher diminishes Pawan's intention to learn mathematics and weakens his learning efforts. Pawan could not understand the lesson when he studied optional mathematics. His teachers emphasized rote learning focusing on memorizing the formulas, rules, and steps needed to solve problems in mathematics. Kristina's had frequently changed school and got the chance to interact with more teachers. Unfortunately, she found that all the teachers were not friendly, and she did not receive care and attention. She states that her teachers were not confident, well qualified, and skilful. Santosh had little different views about teacher such that teacher focuses on practice, thinking,

brainstorming, making group in class, sometime use constructivism approach. Those views about teacher reflects the positive perception towards learning mathematic, but they like to practice mathematics they like their teacher's teaching strategy. Most of my research participants viewed teacher as follower of behaviourist approach but do not follow its procedure, teacher cannot teach effectively and understandably, not motivators, not follow cooperative and collaborative approach, not provide good environment for creation, had pedagogical and content knowledge, only focuses tradition approach with rote memorization and rote learning, not connected mathematical problem in real life situation and had not professional standards. Above views of my participants about teacher were not good and satisfactory. Due to those views my participant felt that mathematics was boring, uninteresting, and difficult subject and develop negative perception toward learning mathematics and students are indifferent toward learning mathematics.

3.10 Teaching method

Teaching method is important for teaching learning process. Teaching method is medium of transforming knowledge. Bhagawati, Pawan, are public school students. Mostly their teacher used lecture method followed by behaviorist approach. Lecture method sometimes can be meaningful when it follows suitable procedure of lecture method. Their teacher had not followed suitable procedure of lecture method. So learning was not meaningful. Due to rote learning, my participants felt that mathematics was difficult and boring subject. Hence they developed negative perception toward learning mathematics. Due to negative perception students are indifferent toward learning mathematics.

In the same way, Santosh, Kristina were private school students. Most of the teacher's lecture method reflect rote learning. Santosh that, sometimes their teacher used guided discovery and problem solving method which made learning mathematics meaningful and interesting. All of my participants' teacher used lecture methods adopted by behaviorist approach. But they didn't follow meaningful lecture method. This method created difficulties and bored them toward learning mathematics and developed negative perception toward learning it. Due to traditional teaching method, students were indifferent towards learning mathematics.

3.11 School administration with physical facilities

School administration and physical facilities are school related factors. I had taken four participants out of them Santos and Kristina were private school students and Bhagawati, Pawan, were public school students. Santosh and Kristina from private schools, reflect their views that school administration is fully supportive and highly concerned to make the mathematics teaching-learning process effective. To some extent, these activities help to develop a positive attitude among the students in learning mathematics, but these students were expecting a practical learning environment and a different teaching approach. In the same way, Pawan and Bhagawati, were community school students. They were not satisfied with the physical facilities and wanted attention from the school administration. Students' support programs in mathematics were limited in these community schools in comparison to private schools. Teachers were frequently changed which indicated that teacher turnover is high in these schools. According to their views, school administration and physical facilities were better in private school than public school. Private school had good classroom management, good environment and good code of conduct then public schools. Those good school administration, good classroom, good physical facilities developed interest toward learning mathematics. Hence poor school administration, classroom, physical facilities developed student's indifference toward learning mathematics.

3.12 Home related factors

Home related factor reflect students' indifference toward learning mathematics. Home related factor is connected with home environment, parents' qualification, parents' behavior, social-economic status of parents. Pawan's had sufficient time to study at home. He liked to study math at home and school equally. His parents encouraged him and supported him by providing the materials whenever he needed them. They create a quiet and peaceful environment while he was studying but they were incapable to teach him at home because they were not educated. He frequently supported his parents in household works.

In the same way, Santosh had plenty of time to learn mathematics at home. His father took care for him, so he didn't have any financial problems. His father did everything he could. He had good environment at home, but his father didn't study mathematics, He didn't know how to learn mathematics. Due to good parent's behaviour, good economic background with good environment, he felt that mathematics wasn't difficult and interesting.

In the same way, Kristina hadn't like mathematics. Her parents live in Hongkong, but she lives in Nepal, sometimes, she went to Hongknog so her class had been missed due to discontinuity of her class, she feels that mathematics is hard subject. Her parents had good economic status but they are uneducated so they can't support to teach and counsel to solve problems of math so, she hadn't good environment to learn mathematics. Her parents expect her to obtain good marks in mathematics but not to provide suitable environment. So, she was indifferent toward learning mathematics.

From above discussion, I conclude that indifference towards learning mathematics is related to home related factors such as socio-economics status of parents, parent's qualification, and behaviour. Private school students had good home environment, better socio-economic status with parent's qualification. Due to those reasons, they are interesting towards learning mathematics then public-school students.

3.13 Society related factors

Social factors are related to society. Social and cultural environment had effect on interest toward learning mathematics. From Bhagawati, I concluded that, there was good prestige who read in mathematics in society so, their parents encouraged them to read mathematics, there are no disturbance towards learning mathematics by their culture and tradition. Sometimes they thought that mathematics was used in culture. Due to that thought they inspired themselves towards learning mathematics and develop interest towards learning mathematics. In the same way, from Pawan's story, there was no disturbance for learning mathematics by society and his relative. In the same way. Santosh had no disturbance towards learning mathematics from the society. He saw the people who read mathematics get good respect from others. Due to that event, they developed interest toward learning mathematics. In the same way, Kristina feels that her environment, society, and culture hamper her towards learning mathematics. She grew up in Gurung society. In Gurung society, they hadn't focused to learn mathematics as well as other subject, they had more cultural programs hold in her society. those programs disturbed her towards learning mathematics.

From the above discussion, it is found that disinterest towards learning mathematics is related to socio-cultural discrimination and environment.

Conclusion and implication

The research objective was to explore the factors influencing students' indifference towards learning mathematics. Indifference and interest are closely related to perception. The study focused on students from public schools, as they exhibited higher levels of indifference towards learning mathematics compared to students from private schools. In Nepal, despite the recognition of the importance of mathematics, students at all levels, from school to university, display indifference towards the subject.

The research analysed factors contributing to indifference towards learning mathematics, including low achievements, low self-efficacy, anxiety, and math myths. Participants perceived mathematics as difficult, boring, abstract, rule-oriented, and non-creative, reinforcing math myths. School-related factors, such as teachers, teaching methods, and administration, also influenced students' interest. Home-related factors, including parents' qualifications, behaviour, and socio-economic status, also played a role in students' indifference towards learning mathematics. Society-related factors, including behaviour, culture, and environment, affect students' interest in learning mathematics.

Public school students show higher indifference towards learning mathematics compared to private school students. Indifference towards learning mathematics is influenced by factors like teacher behaviour, motivation, current curriculum, low socio-economic status, ineffective teaching strategies, parents' qualifications, poor home environments, low mathematics achievements, anxiety, impractical curriculum, low self-efficacy, poor school administration, classroom management, lack of student labour, traditional teaching methods, and prevailing math myths. This study aims to identify the factors contributing to indifference towards learning mathematics. It provides insights for teachers, policymakers, curriculum planners, and experts to understand these factors and find ways to minimize indifference.

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