

Learning Difficulties of Mathematics at Primary Level

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<p><i>Article Info:</i> Received: August 1, 2023 Revised: August 29, 2023 Accepted: September 15, 2023</p>	<p>ABSTRACT: The aim of this study was to identify the causes of difficulties in learning mathematics for students at the primary level. For this purpose, I selected a primary school in Ru Ru 04 of Gulmi District. I selected four students studying in Lamakharka Jhamadi primary school at grade five by applying purposive sampling. I used phenomenology within qualitative research design. I triangulated the collected data from students, teachers, and the parents of respective students. From this study, I found that language differences, parent's carelessness, low economic status, an unfavorable school environment, and a lack of practice at home are the main causes of learning difficulties for students in mathematics.</p>
<p><i>Keywords:</i> Mathematics, primary level, cultural diversity, students, difficulties</p>	

Introduction

Mathematics is one of the most important and compulsory subjects in school level education from primary to class ten. In all minor and major activities of life such as counting money, purchasing goods in market, selling goods, arranging party in society and joining profession, the knowledge of mathematics is necessary (Schoenfeld, 2022). In this regard, mathematics is a key to all sciences. Mathematics has a close relationship with human life and social sciences such as economics, population, sociology and sciences as well (Rajkumar, & Hema, 2017). Students who study mathematics gain useful abilities that they can use in their daily lives.

Mathematics helps in the growth of rational thinking, problem-solving skills, critical thinking, and decision-making ability but our primary level students do not understand mathematics properly (Mishra, 2020). Mathematics teachers have highlighted that students often approach mathematics is a difficult subject. Teachers also have faced the mathematical problems while teaching therefore teachers should give adequate homework and classwork to the students and need to keep them practicing (Makondo, & Makondo, 2020). A solid mathematical knowledge gives students a strong foundation for advanced study, regardless of what they want to pursue jobs in the market. Learning mathematics helps to develop cognitive skills but it is poorly taught and teachers force to follow the textbooks only (Akhter, & Akhter, 2018). It fosters mental ability, pattern identification, and abstract thought. Problem-solving activities and mathematical ideas engage the brain, enhancing cognition in general and memory and focus in particular (Zan, & Martino, 2007). It indicates learning difficulties can be seen both positive and negative way and negative attitude increase that mathematics is disliking subject (Chinn, 2016).

A vast variety of professional prospects are made available by mathematical proficiency (Hodanova, & Nocar, 2016). Mathematics is fundamentally a problem-solving subject. Students gain the ability to examine complex situations, deconstruct them into simpler elements, and come up with answers by working on mathematical problems (Jacinto, & Jakobsen, 2020). These problem-solving abilities can be used in a variety of real-life situations, which promotes resilience and adaptability. In this context, Long and Dunne, (2014) say good mathematics teachers understand the students' difficulties and engage with students' interest. Moreover, mathematics learning in primary level need to base on mother tongue language, and most children seem o mathematics difficulties show that weakness in memory and application of mathematics facts (Kelanang, & Zakaria, 2012). Mathematics fosters a particular mode of thinking typified by accuracy, logical thought, and attention to detail. This way of thinking fosters methodical problem-solving, information evaluation, and deeper comprehension of difficult concepts in students. Yuliandari, and Anggraini, (2021) advocate that conceptual understanding is important for students' skills development so teacher must be a well designer to reduce difficulties of mathematics in primary level.

All things considered, learning mathematics in school not only develops practical skills but also improves cognitive functioning, encourages critical thinking, and creates prospects for future education and a variety of job pathways. Additionally, Veldhuis, and Zhao (2018) view that teachers need to relate various teaching approach and students' mathematics achievement. They further added that teaching is a process- product approach with justification. It is a crucial subject that provides students with useful knowledge and abilities that are applicable in many facets of life. Langoban, (2020) concludes that one of the greatest challenges of a teacher is making mathematics easy for the students. Teachers need to consider background and diversity of the students for reducing the complexity of the learning (Chinn 2016). Without a strong foundation in mathematics, students find it difficult to understand complex ideas in these fields and may find their academic options. Critical thinking and problem-solving abilities are developed through mathematics, so students need to have emotional disposition towards mathematics for deep understanding (Hannula, 2002). Students gain the ability to analyze issues, divide them into smaller, more manageable sections, and use logical reasoning to arrive at solutions by engaging with mathematical principles. Rusiman, Mohamad, Him, and Kamardan, (2017) view that use of concrete teaching materials may help for changing students' abstract knowledge into concrete one so that mathematics is easy for understanding in primary level.

This study focused on the challenges that the students face when learning mathematics at the primary level. The study matches the academic performance of Brahmin, Magar Rai and Dalit children at the primary level while also looking at the teaching strategies of mathematics teachers, the usage of instructional resources, and student collaboration activities. From the aforementioned claims, I can conclude by taking the following questions: What are the main causes of challenges for the students in the primary level? Why do students feel learning difficulties of mathematics in primary level?

Students' mathematics learning issues might vary, and it is vital to remember that every person may have different obstacles. However, there are a few typical learning challenges that young students may experience in solving mathematics problems. It can be difficult to understand concepts like quantity comparison, place value, and counting. For some students, it

can be difficult to comprehend the jargon, symbols, and mathematical terms. Like all students, ethnic children may have trouble understanding the terminology used in mathematics instructions and problems. For some children, it might be challenging to recall basic math facts like addition, subtraction, multiplication, and division.

Theoretical Framework

As a framework, I used social constructivism theory for this study where, Lev Vygotsky, a psychologist, founded the socio-constructivism theory, which places an emphasis on social interactions, cultural artefacts, and the environment in which learning takes place. This theory holds that learning is a social activity that happens within a cultural and historical context.

Students learn through their relationships with others, who offer direction, encouragement, and learning opportunities. According to the socio constructivism theory idea of "situated cognition," learning is significantly impacted by the setting or context in which it takes place. The environment might involve a variety of places, including the classroom, home, community, when it comes to studying mathematics. The concept of situated cognition emphasizes that mathematical understanding is rooted in both actual experiences, abstract concepts and methods. Multiple crucial elements make up the conceptual framework for comprehending learning challenges in the primary mathematics classroom.

These elements cover characteristics that may affect a student's ability to acquire mathematics in the classroom, as well as student-, classroom-, teacher-, and parent-related issues. The classroom environment and social dynamics in the classroom can have an impact on how at ease, confident, and eager students are to participate in arithmetic activities. Students' motivation, involvement, and readiness to seek assistance while experiencing challenges can be influenced by the effectiveness of the relationships between teachers and students, which are distinguished by trust, respect, and good communication.

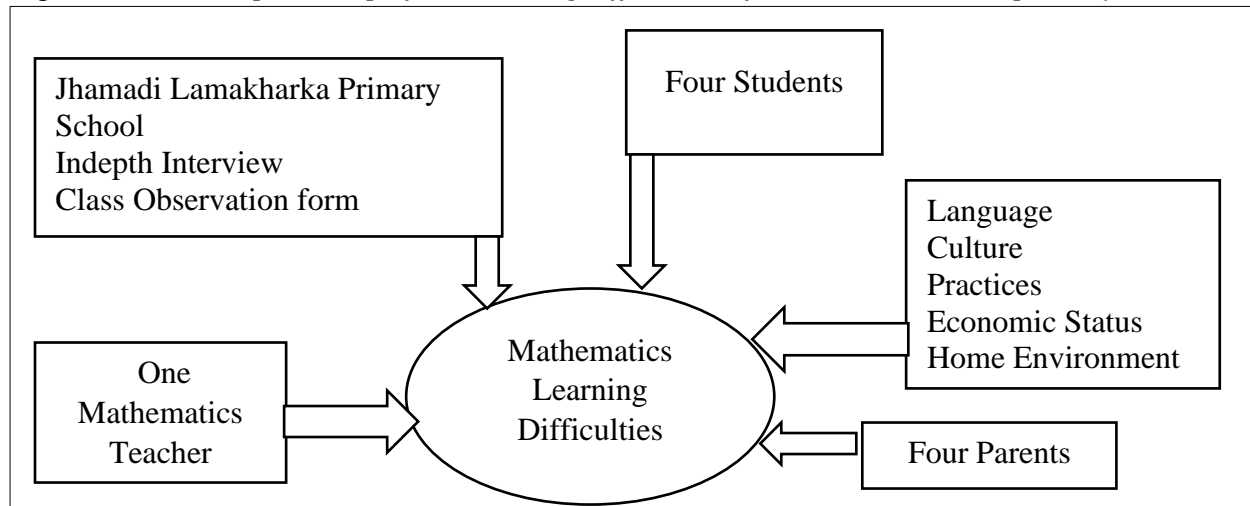
Methodology

I used a qualitative research design that specially concerned with phenomenology in exploring the meaning of understanding about the mathematics learning at the primary level. I used Jhamadi Lamakharka Primary school Ru Ru, 04 Gulmi district as a research site. By applying purposive sampling, I selected four students (two girls and two boys) from that school. I triangulated by taking one mathematics teacher, four students and four parents of respective students.

Data Collection and Analysis Procedure

I informed the school's head teacher about my study; I took in-depth interview of all four students by using personal diary and interview guide lines. Similarly, I interviewed four parents of their corresponding students and one mathematics teacher in this school. Moreover, I observed the mathematics classroom by applying observation check list. After collecting the data, I prepare basic theme, basic theme and global theme according to their response. I took ethical thought that the period of data collection and data analysis. The following conceptual framework summarizes the methodology of the study:

Figure1. The conceptual map of the learning difficulties of mathematics at the primary level.



Socio-cultural Background of the Students

The Magar, Rai and Dalit people belong to native ethnic groups of Nepal. They come from a certain cultural heritage that has influenced who they are and how they live. The Magar and Rai people have historically worked in agriculture, livestock care, and hunting. Additionally, several Magar communities have a history of producing talented weavers, carpenters, and blacksmiths. Students studying in the Magar and Rai language may have different viewpoints and experiences as a result of their cultural knowledge and expertise in these traditional jobs.

Most Magar and Rai students struggle to make a living and are therefore unable to put enough money into their education. Cultural practices immediately influence social systems on the inside while also having an impact on human cognition. The analysis of how the current cultural practice supports the learning of mathematics by Magar, Rai and Dalit students at the primary level is one of the study's main goals.

Findings and Discussion

In what follows I present the important responses from the participants involved in this study.

Participant A

Participant A was an eleven-year-old girl student studying in grade five. She lived in Ru Ru Kshetra rural municipality- 4. She took half an hour to reach school from her house. She had four members in her home, and her economic status was very poor. She said,

Before going to school, I have to finish all the household work, such as cutting grass for animals, carrying water from a well, and other household work. My family depends upon farming, but we have no sufficient land, making it difficult to manage food in two times, such as morning and evening. I reach school quite late every day. I am usually absent during the period of attendance. (Interview; 10th October 2022)

Because of poor economic condition, her father couldn't get any formal education but he was skillful in running the house by doing simple works. Her mother was unable to get formal education and her mother is housewife. She helps her husband also. Her father works

in field, weaves bamboo strips, *doko dalo*, *supo (nanglo)*, etc. Her father could not manage enough facility for her children required for the proper educational environment. During the data collection time, I found that students had specific characteristics such as friendly language in his class like “yo sir thorai bolchha, yo kasari garyo sir”. She did not ask the questions properly, because her language is Magar language in family and community. She does not speak Nepali fluently, and she uses Nepali as a second language. She said Mathematics is a difficult subject to compare with other subjects.

In this context, I observed mathematics classroom teaching, the teacher had taught fraction and he asked the question which of the following fractions is equivalent to $\frac{5}{7}$? In this context he gave more four fractions such as $\frac{10}{14}$, $\frac{15}{21}$, and $\frac{20}{28}$. However, the students did not able to give proper answer. It means the students did not understand about the equivalent fraction. In the same way, mathematics teacher asks the question which of the following fraction is the simplest form of $\frac{12}{16}$? Most of the students do not say the answer of this question and my respondent also was unable to say the proper answer.

Moreover, the teacher asked- do you have any idea about the mixed fraction? But students did not give proper answer. Similarly, teacher gave subtraction of algebra $\frac{4}{5} - \frac{3}{5}$. Most of the students solved it and the same way my selected students solved subtraction of proper fraction but she does not learn subtraction of improper fraction such as $\frac{5}{7} - \frac{3}{5}$. It means she did not understand the improper fraction while making fraction with figure. Most of the students tried to subtract numerators and denominators instead of taking LCM of the denominators of the fractions or converting into equivalent fractions with same denominators. Additionally, I asked the teacher about the difficulties faced by the students. Teacher emphasizes student’s difficulties in algebraic structure of fraction over the misconceptions of previous classes. Errors and misconceptions occur inappropriate generalization of an idea.

Understanding fractions as components of a whole is necessary for performing fraction operations. Students will have trouble with addition and subtraction if they do not have a strong understanding of what fractions stand for and how they relate to whole numbers. Finding a common denominator is necessary for adding and subtracting fractions. Students will have trouble carrying out the operations successfully if they have trouble finding common denominators or don't get why this step is important. Students can better understand the topic by using visual aids like fraction bars, circles, or rectangles. They could have trouble manipulating fractions if they can't picture them as pieces of forms or lengths. The ability to understand mathematical ideas might be hampered by language if the student's first language is not the one being spoken in the classroom.

When I met her parent then she said:

Due to my busy schedule with home duties, I have not been able to give my children much attention. Her coursework advanced and was distributed across the entire school. My daughter needs to take care of every household chore and attend school remotely. Cows and buffalo will be hungry if the grass is not trimmed. Cows and buffaloes will go without food if she didn't carry water from a well. Water is also necessary for us. The family as a whole depends on agriculture. She ought to assist in farming as well. My daughter won't go to school regularly and won't obtain a job. Learning to recognize letters and reading solely for homework are the goals of study. Our financial condition

prevents us from paying higher education. We also speak a language other than Nepali at home. My daughter has been unable to read as a result”.

From the above context, I conclude that primary-level students learning and development can be strongly impacted by their home environment and financial situation. These elements are essential in determining a child's scholastic path and general well-being. Higher economic position and a pleasant family environment frequently give access to a range of educational resources, including books, educational materials. Children are more likely to study and explore when their homes are uplifting and encouraging (Mohyuddin, & Khalil, 2016). A love of learning can be cultivated in children by parents who take an active role in and are interested in their education.

Participant B

Participant B was an eleven year-old fifth-grader . He lived in the rural municipality of Ru Ru Kshetra, 04. He travelled from his home to school in thirty minutes. He lived with six family members, including as his father, mother, brother, grandfather and grandmother and was in extremely precarious financial circumstances. His father was educated person, but his mother is illiterate. His father's demerit is taking alcohol in evening time outside the home. His father was political activist and his mother always busy in agriculture. He was not able to provide enough time to his children at home. His children were very weak in mathematic is because the reason was cultural differences, language discontinuity, and inadequate parental help.

My father is really active in politics. There must be a large population living there at home. Till late at night, the father's friends visit, eat dinner, and make future plans there. I can't complete my schoolwork because of the congested surroundings. Father cannot give us time, not even in the morning, when his friends arrive and depart from the house. It can be challenging to study today's classes when you arrive at school without any homework. The teacher has also scolded me. That's why I'm afraid of my math's teacher in class. Since maths is the hardest subject in my life, my father has provided me with the opportunity for regular tutoring with a math's teacher. However, I have not been able to practice mathematics well. **(Interview; 11th October 2022)**

I observed the class teaching of mathematics. He taught addition, subtraction, multiplication and division in algebraic expression. In this situation, he is still confusion in addition like as $3x - 5$ and $5x + 4$. It means addition is $(3x - 5) + (5x + 4) = 3x + 5x - 5 + 4 = 8x - 1$. Moreover, take another example such as subtraction $6x + 4$ from $5x + 2$. He does not able to subtract easily, $5x + 2 - (6x + 4) = -x - 2$. Moreover, mathematics teacher asked about the solving the equations $3x + 2 = 8$ (1), and $2x - 5 = 1$(2). Solving the equations (1) and (2). From the equation (1) we can find $3x = 8 - 2$, $3x = 6$, $x = 6/3$ so $x = 2$. Additionally, for the second equation, the teacher asked for the solution, but the students did not give the correct answer. They did not know when a negative sign was remaining left and when it should change to a positive sign to the right. Finally, teacher solved the linear equation $2x - 5 = 1$ or $x = 3$.

When I met his parent then he said, *“I have not been able to pay much attention to my son due to busy household chores. His studies progressed throughout school. He is not very good at studying mathematics. I have not been able to go to school and ask the math teachers*

and head teacher. I have only arranged an extra class for my child. Even his family environment is not suitable for studying, so my children's studies are not good”.

Drawing on the above context, it can be concluded that parents need to create positive and supportive learning environment. It means parental envelopment provides emotional support for children. Parents give well home environment for learning mathematics at primary level. In this context, Mundia (2012) view that review lesson, provide proper guidance and counselling are the main elements of the basis of students learning from their children.

Participant C

Participant C was an eleven year old girl studying at grade V. She lived in Lamakharka, Ru. Ru. Kshetra rural municipality, 04. There are eight members in her family. Her father is abroad for employment. Her study is not so good because she works every day in her home. Her mother is still working labor for earning money. She said that

my father is still in abroad, he does not earn money for family. He went abroad when she was studying in class two. I had to work field to earn money by doing labor. I had joint family to cut the grass for our domestic animals. So I could not do homework every day and could not go to school regularly. I am poor in mathematics which I think it is difficult subject for me. (Interview; 12th October 2022)

Her plan is to study up to class ten, and she is not interested in further study. She does not complete her homework given by the teacher. She said I have no time to do homework because I have to involve in my household work because I have to finish all work before going to school. She further says I know the importance of education although my family environment is not favor of my study, that's why I cannot complete my further study. As I do not have excess to particular study room, so I put my books and copy in common room. Sometimes I am unable to collect my books and copies properly during the school time.

These statements indicate that the dropout rate is increasing day by day. Especially rural area schools have no more students in classroom. Particularly, Magar student's interest seems to search alternative approach of studying due to cause of poverty. Poverty is the main hindrances of learning of Magar students. Researcher also involves the classroom observation in this school. I found that in classroom observation, she was not active, she did not complete yesterday's homework. Mathematics teacher taught geometry by using deductive approach. Teacher did not give any chance to ask the question for the students. After then I ask the teacher why not you provided the chance to the students for questioning. He said that all students are lazy in the classroom. When I visited parent then she said:

I have to do all the housekeeping, particularly when her father is abroad. The costs of the house must also be covered by me because my daughter's father does not send money. I am responsible for all farm and household chores. Even the child's homework won't get my assistance. She should assist me with household duties as well. She doesn't have time to practice at home despite how much she studies in class. She feels math's to be more challenging than other subjects. Even teachers, according to what I've heard, shouldn't focus too much on teaching. If students could be motivated to study, math comprehension would improve. (Interview; 12th October 2022)

I have concluded that the teacher should motivate the respondent toward the use of mathematics in real life. Math's learning cannot be effective when lack of support of parents, there is a lot of household work and the teacher is unmotivated (Schmid, & Garrels, 2021). It

gets worse in a small class. Finally, the student starts to struggle with maths. Teacher need to give more time in classroom activities properly and teacher need to emphasize classroom practices.

Participant D

Participant D is an eleven-year old boy studying at grade V. He lived Ru Ru Kshetra rural municipality ward no 04, in joint family with her grandfather, grandmother, uncle, aunt, father, mother and his sister. Both his father and mother were uneducated and they spent their time in agriculture and cow farming. His father was a skillful person to make a house in society. Her mother totally speaks Rai language and she does not speak Nepali language properly. He is not a regular student in school because sometimes his parents make involve him in farming. The Nepali language of such student is also weak, it means he does not speak Nepali properly. He could not use formal language in school to his teacher, so teacher does not care to his learning. He said,

All the teachers in my school speak Nepali language, they are not from our Rai community, I feel hesitation to ask questions directly to the teachers. Instead of asking question to my teacher I feel easy to ask my friends in my own language. If there will be a Rai language teacher in my school it would be better for me to learn so mathematics is difficult subject for me. (Interview; 13th October 2022)

He had difficulty in verbal problems in mathematics. Mathematical verbal issues in primary children can be caused by a variety of reasons, such as cognitive, developmental, and educational characteristics. Here are several explanations as to why primary school students could struggle with verbal math's problems: Grammar and vocabulary are still developing in young children's language skills. Mathematical word problems frequently employ specialized terminology and intricate sentence constructions which test student's language skills. Many mathematical ideas need the use of abstract reasoning and thinking, especially at the fundamental level. Students may be required to comprehend and handle these abstract concepts in verbal issues, which might be difficult for their growing cognitive capacities. Strong reading comprehension skills are necessary for solving verbal math's issues.

In my classroom observation, mathematics teacher taught number system. He started to teach numbers, from $N = \{1, 2, 3, 4, 5, \dots\}$ and he asked the question why zero is not included here? He again emphasized is it possible to complete our number system without zero? No students can give proper answer. He wrote whole number $W = \{0, 1, 2, 3, 4, \dots\}$ and said what is the different between N and W but students did not give any correct answer. One student replied that W contained 0 but N does not contain. Moreover, he did not explain more than that about the natural numbers and whole numbers. He also wrote in white board even numbers, odd numbers, integers, rational and irrational numbers respectively and asked the students individually and as well as group.

It is necessary to build logical linkages between different sorts of numbers, such as natural, whole, even, odd, prime, integers, rational, and irrational, as well as to solidify teachers' understanding of number systems. The development of a solid understanding of the number system as a result of this comparison and contrast would be beneficial for instructing students on the notions of number and "operation on numbers." In addition to doing little to connect the new ideas to the students' prior knowledge or build connections with it, teachers rarely give the pupils the chance to actively participate in maths.

When I met his parent then he said, “*Learning in the native tongue will be simple and easy. Nearly every topic in the class, including maths, is challenging for my kid because he struggles to speak and write Nepali. Writing questions and answers in the local language will be simpler. Because of this, learning would be simpler if there were teachers who could communicate in the local language.*”

In this context, I concluded that local curriculum is necessary for the students especially in basic level education. By matching the curriculum to the needs of the local labor market, promoting entrepreneurship, fostering links with local businesses, and providing comprehensive career development. Therefore, local curriculum and language can significantly contribute to create job opportunities within the local community (Mulwa, 2015).

Conclusion

The findings of this study indicate that studying mathematics is not easy and the main reasons for this are the students' and their parents' low economic and social position and their passivity during learning. Lack of parental involvement, students' irregularity, lack of completing homework, lack of appropriate teaching materials are the key factors contributing to learning difficulty in mathematics. The students' learning is mostly impacted by the fact that their parents are illiterate and dependent on their children for income to support the family. Students are not present at school on one hand because of their families' low socioeconomic status and lack of educational background, and on the other hand children are treated rudely by the school teachers. The lack of motivation is a problem in primary level, so students' progress is highly influenced by teachers' quality and motivation. Inadequate training of the teachers in mathematics equally affects mathematics teaching, further causing learning difficulty for students.

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