

Journal of Educational Research and Innovation

A Multidisciplinary Bilingual Journal

ISSN 2631-2336; Volume 5, Issue 1, December 2025, pp. 45-56

Indexed in Nepal Journals Online ([NepJOL](http://NepJOL.org)) 

**Mathematics Learning Experiences of Students in Children Homes
in Surkhet District, Nepal**

Mahendra Bahadur Shahi, Surkhet Multiple Campus

shahimahendra645@gmail.com

Abstract

This study explores the mathematics learning experiences of students living in children's homes in the Surkhet district of Nepal. Using a qualitative approach, data were collected through interviews, focus group discussions and classroom observations with students, teachers, and caretakers. The findings show that most students see mathematics as a difficult and fearful subject, often feeling anxious and lacking confidence, which affects their motivation and performance. Many students also struggle with weak foundational skills because they were promoted to higher grades without fully understanding fundamental concepts. Limited personal guidance from teachers further adds their difficulties, as lessons often focus on completing the syllabus rather than addressing individual learning barriers. Peer group studies were found to be minimally effective due to lack of structure and proper study materials, while caretakers were unable to provide academic help because of heavy responsibilities, large numbers of children, and lack of training. Overall, the study reveals that students face emotional, academic, and environmental challenges that hinder their progress in mathematics. It highlights the need for stronger support systems, including personalized guidance, confidence-building activities, improved teaching practices, effective peer learning, and better collaboration between schools and children's homes.

Article Info.

Article History

Received: 14 October 2025

Revised: 9 November 2025

Accepted: 11 December 2025

Copyright Information

Copyright 2025 © The author(s).

Publisher



Graduate School of Education
Mid-West University
Birendranagar, Surkhet
www.mwu.edu.np

Keywords: Mathematics learning, qualitative study, children's homes, student experiences

Background

Mathematics is widely recognized as a gateway subject because it underpins higher studies in science, technology, and economics, while also fostering logical reasoning and problem-solving skills essential for

modern life (Anthony & Walshaw, 2009; Kilpatrick, Swafford, & Findell, 2001). Success in mathematics is often linked to better academic and career opportunities, making it a crucial determinant of students' educational futures (Niss, 2018). In Nepal, however, mathematics is regarded as one of the most difficult subjects for students, and failure rates in secondary-level mathematics examinations remain consistently high (Ministry of Education, Science and Technology [MoEST], 2019). The challenge is particularly acute among children who lack parental and academic support, as home-based guidance plays an important role in shaping confidence and persistence in mathematics learning (Khaniya, 2007; Pant, 2015). The National Curriculum Framework also emphasizes mathematics as a compulsory subject necessary for national development, yet acknowledges disparities in learning outcomes across regions and socio-economic groups (Curriculum Development Centre [CDC], 2019). These concerns highlight the importance of creating supportive learning environments, particularly for vulnerable groups such as students in children's homes, to ensure equitable access to mathematical literacy and achievement.

Children Homes

Children's homes, also referred to as residential care institutions, exist worldwide as alternative care settings for children who are orphaned, abandoned, or unable to live with their families. International research indicates that children in institutional care often face significant social and emotional challenges, including attachment difficulties, low self-esteem, and limited academic motivation, which can negatively affect their learning outcomes (Johnson, Browne, & Hamilton-Giachritsis, 2006; UNICEF, 2017). Compared to children raised in family environments, those in children's homes frequently exhibit lower educational achievement due to factors such as inadequate individual attention, frequent caregiver turnover, and limited access to quality learning resources (Delap, 2012; Juffer, van IJzendoorn, & Palacios, 2011). In the South Asian context, poverty, migration, and conflict have contributed to the growth of institutional care, despite global advocacy for family- and community-based alternatives (Csáky, 2009). In Nepal, children's homes play a significant role in providing shelter and education for vulnerable children; however, studies have shown that institutionalized children face greater risks of emotional distress and academic underperformance compared to their peers living with families (Bhattarai, 2018; UNICEF Nepal, 2020). These challenges underscore the need for holistic educational support systems within children's homes to promote both psychosocial well-being and academic success.

Statement of the Problem

Although mathematics achievement has been a frequent subject of educational research in Nepal, most studies have primarily emphasized test scores, examination performance, and quantitative outcomes (Pant, 2015; Ministry of Education, Science and Technology [MoEST], 2019). While these findings are valuable, they often overlook the lived experiences of students, particularly those residing in institutional care such as children's homes. Existing research in Nepal seldom explores how students experience mathematics learning in such settings, where social, emotional, and environmental factors may significantly influence achievement. This gap is critical, as children in residential care often navigate unique challenges, including limited parental guidance, restricted academic support, and psychological stress, which may shape their perceptions and performance in mathematics (Bhattarai, 2018; UNICEF Nepal, 2020). Addressing this gap, the present study adopts a qualitative approach to understand the experiences, challenges, and coping strategies of students in children's homes, thereby providing deeper insights into mathematics learning beyond numerical performance.

Research Objectives

This research was done to attain the following objectives.

- To explore how students living in children's homes perceive their experiences of learning mathematics.
- To identify the social, emotional, and environmental factors within institutional care that influence students' attitudes and motivation toward mathematics.
- To examine the challenges students in children's homes face in engaging with mathematics learning.
- To understand how support systems and peer interactions within children's homes shape students' mathematics learning experiences.
- To explore the coping strategies used by students to manage difficulties in mathematics while living in institutional care.

Literature Review

Studies on Institutionalized Children

Children grow best in safe and loving families. Families give children care, protection, and support. When children do not have parents who can care for them, they face higher risks of harm and delays in their development (UNICEF, 2023). Many children without stable homes are placed in institutions. But research shows that institutional care often cannot meet their emotional and developmental needs. Children in institutions may have problems with learning, social skills, and mental health (van IJzendoorn et al., 2020). They also tend to miss close and stable relationships with caregivers (Humphreys et al., 2022). Family-based care, such as foster care or adoption are alternative child care strategies but children in families show stronger emotional growth and better thinking and learning skills compared with those in institutions (Dozier & Bernard, 2019; Nelson et al., 2020). Because of this evidence, experts suggest that institutions should only be used as a last option, and children should be supported to live in families whenever possible (UNICEF, 2023).

Globally, children residing in institutional care, such as orphanages and children's homes, face a range of social, emotional, and educational challenges that can adversely affect their academic performance. Research highlights that institutionalized children often experience limited individualized attention, frequent caregiver turnover, and inadequate access to quality learning resources, all of which can hinder their educational development (Johnson, Browne, & Hamilton-Giachritsis, 2006; Juffer, van IJzendoorn, & Palacios, 2011). Studies also indicate that behavioral and psychosocial issues, such as low self-esteem, anxiety, and attachment difficulties, further complicate their learning experiences (Adhikari, 2015; Delap, 2012).

In the Nepalese context, children's homes play a significant role in providing shelter and education for vulnerable children, yet similar challenges persist. Bhattarai (2018) emphasizes that institutionalized children in Nepal face barriers such as insufficient educational support, limited resources, and lack of personalized guidance, which negatively impact their learning outcomes. UNICEF Nepal (2020) and the Ministry of Education, Science and Technology (2019) further highlight systemic disparities in access to quality education for children in alternative care, calling for targeted policies and inclusive programs. Additionally, research on mathematics learning challenges in Nepalese schools demonstrates that students

often struggle with foundational knowledge, teaching methods, and motivation, which are exacerbated in institutional settings (Pant, 2015).

Collectively, these studies reveal a critical research gap: while quantitative performance indicators like test scores have been explored, there is limited understanding of the lived experiences and perceptions of children in institutional care regarding their learning, particularly in subjects such as mathematics.

Mathematics Learning Studies

Research shows that students' math success depends not only on their skills, but also on their learning environment, attitudes, and self-confidence. Poor instruction, lack of support, or stressful environment often lead to math anxiety, low engagement, and weak performance (Paudel, 2023; Joshi, Khadka, & Adhikari, 2024). When students find math interesting and feel motivated, they try harder and learn better. But, negative attitudes or lack of interest can push them to avoid math, hurting their grades. A major factor for the success in learning mathematics in students is their confidence in doing math. When students believe they can succeed, they try harder problems, keep working even when it is difficult, and use better strategies. This helps them improve their math performance (Herset et al., 2023; Wu, Qi, & Zhong, 2022).

In Nepal, recent studies show that many secondary-level students struggle in mathematics because of weak foundation, poor teaching methods, lack of resources, and low self-efficacy (Pokhrel, 2023; Paudel & Ghimire, 2024; Gnawali, 2023). Some researchers found that traditional teaching, large classes, and lack of support at home or school make math difficult for many children (Gnawali, 2024; Adhikari, 2024). To improve students' math performance, it is important to build supportive, confidence-boosting learning environments, use better teaching practices such as group work or cooperative learning, and give extra help to those who are disadvantaged (Shrestha, Luitel, & Belbase, 2021; Lamsal, 2024).

Constructivist Perspective in Mathematics Learning

The constructivist perspective, particularly as articulated by Vygotsky, emphasizes the central role of social interaction and guided support—often referred to as scaffolding—in the process of learning mathematics. According to Vygotsky (1978), children acquire knowledge most effectively when they engage collaboratively with peers, teachers, or more knowledgeable individuals who provide support tailored to their current level of understanding. In mathematics learning, scaffolding can take the form of hints, guided questioning, modeling problem-solving strategies, or collaborative group work, all designed to help Students Bridge the gap between what they can do independently and what they can achieve with assistance (Wood, Bruner, & Ross, 1976). Research shows that such social and instructional interactions enhance conceptual understanding, improve problem-solving skills, and build confidence in mathematical abilities (Palincsar, 1998; Ginsburg, 2009). For students in institutional care, where individualized support may be limited, applying constructivist principles can be particularly beneficial in fostering both engagement and achievement in mathematics.

Ecological Systems Theory in Mathematics Learning

Bronfenbrenner's Ecological Systems Theory emphasizes that a child's development is shaped by multiple layers of environmental influences, ranging from immediate settings to broader societal contexts (Bronfenbrenner, 1979). In the context of mathematics learning, the institutional environment, peers, and

teachers play a crucial role in shaping students' academic outcomes. For children living in institutional care, the microsystem—including daily interactions with teachers, caregivers, and peers directly affects engagement, motivation, and confidence in mathematics (Rosa & Tudge, 2013). Supportive teachers who provide guidance and encouragement, along with collaborative peer interactions, can enhance conceptual understanding and foster positive attitudes toward learning (Pianta, 1999). Conversely, environments with limited resources, high caregiver turnover, or minimal academic support can hinder learning, resulting in lower achievement and reduced self-efficacy. Applying the ecological perspective highlights the importance of considering institutional structures, social relationships, and environmental factors collectively when examining mathematics achievement among children in residential care.

Methodology

This study employed a qualitative exploratory research design to investigate the lived experiences, perceptions, and challenges of mathematics learning among students residing in children's homes. This design provides the flexibility to explore diverse experiences and challenges faced by students in mathematics learning.

Participants

The participants of the study were 20 students studying in grades 6 to 10 from two children's homes in Surkhet district, along with 4 care taker and 3 mathematics teachers. The children homes were selected in convenience of the researcher because of the availability of the children homes. And the respondents were selected purposively in order to make the selection inclusive with respect to gender, ethnicity and the age group of the children. The inclusion different groups of students, caretakers, and teachers-allowed the study to capture multiple perspectives on mathematics learning, thereby enhancing the depth and credibility of findings.

Data Collection Tools

Semi structured interview, Focus group discussion and classroom observations were used to collect data in order to ensure depth and richness. Semi-structured interviews were conducted with students, caretakers, and teachers to elicit personal experiences and perceptions (Kvale & Brinkmann, 2015). Focus group discussions (FGDs) with students provided opportunities for peer interaction and shared reflections, generating insights that might not emerge in individual interviews (Morgan, 1997). Classroom observations enabled the researcher to examine student engagement, teacher–student interactions, and classroom dynamics in real time (Merriam & Tisdell, 2016). Additionally, document reviews of students' homework, exercise books, and school records served as supplementary sources, helping to cross-check and validate the interview and observation data.

Data Collection Procedure

Data collection was carried out in multiple stages using qualitative fieldwork techniques. After obtaining permission from relevant authorities and informed consent from participants, the researcher conducted discussion with mathematics teachers about the achievement of students from children homes. Through the documents review of examination reports and with the consultation of teachers, students were selected for interview. Similarly 4 care givers and 3 mathematics teachers were selected for the sample of the study. At first semi-structured interview was conducted with the sampled students, teachers and care givers. After that, the interviewed students were divided into two groups for the FGD because the researcher wanted to observe the students peer interaction and collaboration skills among them. The group of students were made based on their study levels mainly basic level and secondary level. On the

other hand the FGD of teachers and care givers taken at once in order to consolidate the common barriers of the learning mathematics for the children.

Data Analysis

The collected data were analyzed using **thematic analysis**, which involved coding, categorizing, and developing themes from the interview transcripts, focus group discussions, observation notes, and documents. This approach was chosen because it is widely used in qualitative research to identify patterns of meaning across participants' narratives and to contextualize them within broader educational experiences (Braun & Clarke, 2006). To enhance the trustworthiness of findings, **triangulation** of multiple data sources such as students, caretakers, teachers, classroom observations, and documents were used. This process strengthened the credibility and validity of the results by cross-verifying information from different perspectives (Patton, 2015).

Ethical Considerations

Since the study involved children residing in institutional care, careful attention was paid to ethical issues. **Informed consent** was obtained from the concerned institutions, while assent was sought from student participants. Participants' confidentiality was maintained by using **pseudonyms** and ensuring that identifiable information was not disclosed. Furthermore, the researcher remained sensitive to the **emotional well-being of children** during interviews and discussions, creating a supportive environment that minimized any psychological risk. Ethical guidelines for research involving children emphasize respect, protection, and minimizing harm throughout the research process (Graham et al., 2013).

Findings

Perceptions on Mathematics: “Mathematics as a Fearful Subject” vs. “Mathematics as Opportunity”

The findings showed that most students living in children's homes perceive mathematics as a difficult and scary subject. Many students said math feels “*too hard*” and makes them worried. One student shared, “*When the teacher writes numbers on the board, I feel nervous because I think I will make mistakes.*” Caregivers also said that math is a tough subject for many children, and some teachers agreed that math is challenging. A few teachers even mentioned that doing well in math “*needs a special or gifted mind,*” such responses indicate that the teachers' belief also adds fearfulness of mathematics. Because of these ideas, many learners develop fear and low confidence in math. Positive feelings toward the subject are often overshadowed. Students also did not know much about how math could help them in their future careers. As one student said, “*I don't know what math is useful for except exams.*” Teachers and caregivers understood that math is important for education and future jobs, but they accepted that they still struggle with students' low performance and lack of interest. A caregiver explained, “*Even when we encourage them, they remain lethargic learning mathematics.*” These different views highlight a clear tension: on one side, math is seen as something scary and difficult; on the other side, it is

recognized as a subject that can offer many opportunities if students feel supported and confident.

Challenges: Lack of Personal Guidance, Mathematics Anxiety, and Weak Foundational Skills

The study found that students living in children's homes face several difficulties in learning mathematics. One major problem is the lack of personal guidance. Many students said they rarely get one-to-one support. As one student shared, *"No one is there to explain slowly when I don't understand."* Caregivers also agreed, with one saying, *"We cannot give them the extra help they need in mathematics."* Teachers similarly expressed that due to large classes, *"It is hard to give individual attention."*

Because of this limited support, many students experience strong mathematics anxiety. They often feel scared, tense, or worried during mathematics lessons or tests. One student said, *"When the teacher asks a mathematics question, my heart beats fast."* Another mentioned, *"I try to avoid mathematics because I feel nervous."* Teachers confirmed that several students appear fearful in mathematics classes.

Another big challenge is weak foundational skills. Many students were promoted to higher grades without fully learning basic concepts. A teacher explained, *"Some students don't know earlier topics, so they struggle with new lessons."* Students also admitted gaps in their learning, with one saying, *"I forgot the basics, and so new chapters feel too hard."*

These issues- limited guidance, high anxiety, and weak foundations-create a cycle that makes mathematics learning even more difficult. Students feel left behind, lose confidence, and begin to develop negative attitudes toward the subject.

Support Systems: Teacher Encouragement, Peer Group Study, and Caretaker Involvement

The study revealed that the support system for students learning mathematics was quite weak. Although teachers taught their lessons, many students felt they did not receive much encouragement or motivation. One student shared, *"teacher finishes the chapter fast, but we still do not understand."* Another said, *"Teachers tell us to work harder, but they don't show us how."* Teachers also admitted that they often focused on completing the syllabus because of time pressure.

Peer group discussions showed that students wanted to do better in mathematics, but they did not know how to support each other. Some students said, *"We are told to study together, but we don't know what to do."* Others mentioned that group study sometimes became noisy or unhelpful because some students came without books or stationery. One student said, *"It becomes like playing, not studying."* Memorizing formulas and solving problems were especially difficult for many of them.

Caretaker involvement was also limited. Caregivers mostly provided basic needs like food and lodging, but they struggled to give academic help. One caretaker explained, *"We want to support them, but there are too many children."* Another said, *"We are not trained to teach*

mathematics.” They also felt restricted by institutional rules and the diverse backgrounds of the children.

Overall, the findings showed that although teachers, peers, and caretakers understood the importance of mathematics, students still lacked the steady guidance, emotional support, and structured environment they needed to make real progress.

Discussion

Perceptions on Mathematics: “Mathematics as a Fearful Subject” vs. “Mathematics as Opportunity”

The findings of this study show that most students in children’s homes see mathematics as a difficult and fearful subject. Their fear often comes from repeated struggles and the belief that math is only for “smart” or “gifted” students. Many students shared that they feel nervous the moment numbers or problems appear on the board. This emotional response is strengthened by teachers’ and caregivers’ own beliefs about math being a tough subject. When teachers say that scoring high in mathematics “requires a special mind,” it can unintentionally reinforce students’ fear and low confidence.

This perception affects how students approach mathematics. Many avoid practicing or asking questions because they have fear of committing mistakes. Students also seem unaware of the value of mathematics in everyday life or future careers. This limited understanding reduces their motivation to learn. Caregivers and teachers recognize that math is important, but they struggle to change students’ negative attitudes. The contrast between fear and the potential opportunities mathematics shows that students need more emotional support, encouragement, and real-life explanations of why math matters. Without addressing these perceptions, improving learning will remain difficult.

Challenges: Lack of Personal Guidance, Mathematics Anxiety, and Weak Foundational Skills

The study also revealed that students living in children’s homes face several interconnected challenges while learning mathematics. One major issue is the lack of personal guidance. Because teachers manage large classes and caregivers are not trained in academic support, students do not receive the individual attention they need. When students do not understand a concept, they often have no one to provide repeated explanations. This lack of support directly contributes to mathematics anxiety.

Mathematics anxiety was clearly visible in students’ responses. Many described physical symptoms such as fear, tension, or a raising heartbeat when asked to solve math problems. This anxiety prevents them from focusing and reduces their willingness to participate in class. Teachers also noted that many children appear scared during mathematics lessons.

Another important challenge is weak foundational skills. Several students have been promoted to higher grades without mastering basic concepts, which makes new lessons feel confusing and overwhelming. When earlier gaps go unaddressed, students fall further behind, increasing frustration and reinforcing negative emotions toward the subject. These challenges form a cycle: poor foundation leads to confusion, confusion leads to fear, and fear leads to avoidance which makes their improvement even harder.

Support Systems: Teacher Encouragement, Peer Group Study, and Caretaker Involvement

The findings also show that the support system surrounding students' mathematics learning is limited. Although teachers teach their lessons, students feel that encouragement and guidance beyond classroom teaching is lacking. Due to syllabus pressure, teachers focus mainly on completing chapters rather than ensuring deep understanding. As a result, weaker learners struggle to catch up.

Peer group study, which could be a helpful support, is also not functioning effectively. Students want to study together, but they lack proper guidance on how group learning should work. Many sessions become unproductive because students come unprepared or get distracted easily. Difficulties with formulas, problem-solving, and maintaining discipline in groups further reduce the usefulness of peer study.

Caretaker involvement is also minimal. Caregivers provide essential needs like food, safety, and daily care, but they are unable to support academically. They handle many children at once and often do not have training in teaching mathematics. Institutional rules and diverse student backgrounds add to their challenges. Caregivers want to help, but the environment does not allow them to give focused academic support.

Overall, the weak support system, limited teacher guidance, ineffective peer study, and minimal caretaker involvement makes it difficult for students to build confidence and improve their mathematics skills. Students need more structured support, motivation, and consistent monitoring to progress meaningfully in mathematics.

Conclusion and Implication

This study found that many students living in children's homes see mathematics as a difficult and hard subject. Their teachers and caregivers often share similar beliefs, which strengthens the students' fear and reduces their confidence. As a result, many students develop mathematics anxiety and fail to see how the subject could help them in the future. Their difficulties grow because they receive limited personal guidance, have weak basic skills, and lack effective learning strategies. Promotion to the next grade without mastery also adds to their struggles. Support systems around them are not strong enough. Teachers focus more on completing the syllabus rather than building students' understanding. Peers are not always helpful enough and caretakers mainly provide basic needs rather than academic or emotional support. Together, these factors create barriers that slow students' learning and weaken their motivation in learning mathematics.

The findings suggest that both schools and children's homes need to create a more supportive learning environment. Teachers should use simple guidance, step-by-step help, and encouragement to reduce fear and build confidence. Regular follow-up on students' basic skills and targeted help can strengthen their foundation. Teachers need sufficient insights through various pedagogical trainings to handle students who struggle with the situations. Peer study groups should be better organized so that they support learning instead of causing distractions. Caretakers should receive basic training to provide emotional encouragement and simple academic support. Finally, showing students real-life uses of mathematics and

giving career guidance can help them see mathematics as useful and full of opportunities, rather than something to fear.

References

- Adhikari, G. P. (2024). Technological challenges: A case of secondary-level mathematics teachers' integrating ICT in mathematics classrooms. *Academia Research Journal*, 3(2), 86–97. <https://doi.org/10.3126/academia.v3i2.67372>
- Adhikari, R. P. (2015). Perceived behavioral problems of school-aged children in Nepal. *Journal of Nepal Health Research Council*, 13(31), 1–6.
- Anthony, G., & Walshaw, M. (2009). Characteristics of effective teaching of mathematics: A view from the West. *Journal of Mathematics Education*, 2(2), 147–164.
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.
- Ashcraft, M. H., & Krause, J. A. (2007). Working memory, math performance, and math anxiety. *Psychonomic Bulletin & Review*, 14(2), 243–248. <https://doi.org/10.3758/BF03194059>
- Bhattarai, P. (2018). Educational challenges of institutionalized children in Nepal. *Journal of Education and Social Studies*, 5(1), 45–56.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Sage.
- Csáky, C. (2009). Keeping children out of harmful institutions: Why we should be investing in family-based care. London: Save the Children.
- Delap, E. (2012). *Fostering better care: Improving foster care provision around the world*. London: EveryChild.
- Dozier, M., & Bernard, K. (2019). *Coaching parents of vulnerable infants: The ABC program*. Guilford Press.
- Evans, D. (2019). Supporting disadvantaged learners in mathematics: A case for relational pedagogy. *Educational Studies in Mathematics*, 101(2), 245–263.
- Ginsburg, H. P. (2009). *Mathematics learning and teaching in early childhood: Paths toward excellence and equity*. National Research Council.
- Gnawali, Y. P. (2023). Learning difficulties of mathematics at primary level. *Praghyaratna* 5(1), 206–215. <https://doi.org/10.3126/praghyaratna.v5i1.59289>
- Gnawali, Y. P. (2024). Causes of poor performance in mathematics at School Education Examination (SEE). *Ganeshman Darpan*, 9(1), 71–78. <https://doi.org/10.3126/gd.v9i1.68537>
- Graham, A., Powell, M. A., Taylor, N., Anderson, D., & Fitzgerald, R. (2013). *Ethical research involving children*. UNICEF Office of Research – Innocenti.
- Herset, M., El Ghami, M., & Bjerke, A. H. (2023). The effect of level-marked mathematics tasks on students' self-efficacy: An experimental study. *Frontiers in Psychology*, 14, Article 1116386. <https://doi.org/10.3389/fpsyg.2023.1116386>

- Humphreys, K. L., McLaughlin, K. A., & Sheridan, M. A. (2022). Early adversity and developmental outcomes. *Annual Review of Developmental Psychology*, 4, 93–118.
<https://doi.org/10.1146/annurev-devpsych-121318-085006>
- Johnson, R., Browne, K., & Hamilton-Giachritsis, C. (2006). Young children in institutional care at risk of harm. *Trauma, Violence, & Abuse*, 7(1), 34–60.
- Joshi, D. R., Khadka, J., & Adhikari, K. P. (2024). Exploring the effects of online learning complications on mathematics achievement. *International Journal of Instruction*, 17(4), 78–98.
<https://doi.org/10.29333/iji.2024.1745a>
- Juffer, F., van IJzendoorn, M. H., & Palacios, J. (2011). Children in institutional care: Delayed development and resilience. *Monographs of the Society for Research in Child Development*, 76(4), 8–30.
- Khaniya, T. R. (2007). *New horizons in education in Nepal*. Kathmandu: Kishor Khaniya.
- Kilpatrick, J., Swafford, J., & Findell, B. (2001). Adding it up: Helping children learn mathematics. Washington, DC: National Academy Press.
- Kvale, S., & Brinkmann, S. (2015). *InterViews: Learning the craft of qualitative research interviewing* (3rd ed.). Sage.
- Lamsal, H. (2024). Equitable pedagogical practices in learning mathematics at secondary schools in Nepal. *The EFFORTS, Journal of Education and Research*, 5(1), 22–40.
<https://doi.org/10.3126/ejer.v5i1.65630>
- Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation* (4th ed.). Jossey-Bass.
- Ministry of Education, Science and Technology (MoEST). (2019). *Education sector analysis 2019*. Kathmandu: Government of Nepal.
- Morgan, D. L. (1997). *Focus groups as qualitative research* (2nd ed.). Sage.
- Nelson, C. A., Fox, N. A., & Zeanah, C. H. (2020). *Romania's abandoned children*. Harvard University Press.
- Niss, M. (2018). Mathematics as a prerequisite for success in modern society. *Educational Studies in Mathematics*, 99(2), 111–118.
- Palincsar, A. S. (1998). Social constructivist perspectives on teaching and learning. *Annual Review of Psychology*, 49, 345–375.
- Pant, B. D. (2015). Students' difficulties in learning mathematics in Nepalese context. *Journal of Education and Research*, 5(2), 28–43.
- Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). SAGE Publications.
- Paudel, K. C. (2023). Impact of classroom environment on high school students' mathematics anxiety. *Academic Journal of Mathematics Education*, 6(1), 33–39.
<https://doi.org/10.3126/ajme.v6i1.63796>
- Paudel, K. C., & Ghimire, S. P. (2024). Mathematics self-efficacy among secondary level students. *Praghyaratna प्रज्ञारत्न*, 6(1), 123–130. <https://doi.org/10.3126/praghyaratna.v6i1.64544>
- Pianta, R. C. (1999). *Enhancing relationships between children and teachers*. Washington, DC: American Psychological Association.

- Pokhrel, M. (2023). Exploring challenges towards learning mathematics among secondary school students in Nepal. *Academic Journal of Mathematics Education*, 6(1), 20–32.
<https://doi.org/10.3126/ajme.v6i1.63784>
- Rosa, E. M., & Tudge, J. (2013). Urie Bronfenbrenner's theory of human development: Its evolution from ecology to bioecology. *Journal of Family Theory & Review*, 5(4), 243–258.
- Shrestha, R. D., Luitel, B. C., & Belbase, S. (2021). Underachieving students' mathematical learning experience in the classrooms in Nepal. *Contemporary Mathematics and Science Education*, 2(2), ep21010. <https://doi.org/10.30935/conmaths/10944>
- UNICEF Nepal. (2020). *The status of children in alternative care in Nepal*. Kathmandu: UNICEF Nepal.
- UNICEF. (2017). *The State of the World's Children 2017: Children in a digital world*. New York: UNICEF.
- UNICEF. (2023). *Children in alternative care*. UNICEF. <https://www.unicef.org>
- van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., Duschinsky, R., & Skinner, G. (2020). Institutionalization and child development. *The Lancet Child & Adolescent Health*, 4(8), 635–643. [https://doi.org/10.1016/S2352-4642\(20\)30116-5](https://doi.org/10.1016/S2352-4642(20)30116-5)
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Wood, D., Bruner, J. S., & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry*, 17(2), 89–100.
- Wu, J., Qi, S., & Zhong, Y. (2022). Intrinsic motivation, need for cognition, grit, growth mindset and academic achievement in high school students: latent profiles and its predictive effects. *ArXiv*. <https://arxiv.org/abs/2210.04552>