Factors Affecting Slow Learners in Math: A Case Study in a Community School

Samjhana Thapa Magar

Gorkha Campus, Gorkha

samjana.thapamagar@gc.tu.edu.np

Abstract

With an emphasis on a case study carried out at a community school, this research piece examines the difficulties encountered by slow arithmetic learners. Students with IQs below average are known as slow learners, and they frequently face scholastic challenges as a result of a confluence of emotional, environmental, and psychological variables. Using a qualitative research methodology, this study examines secondary source data and case studies to pinpoint the main reasons why students struggle with mathematics and assess potential remedial measures. A review of previous research, case studies, teacher, parent, and peer group interviews, as well as firsthand observations of classroom dynamics, are all part of the process. Results show that constant evaluation, positive reinforcement, and specialized teaching methods greatly help slow learners. Addressing sluggish learning also requires teacher preparation and parental involvement. To meet a range of learning requirements, recommendations include integrating technology-based resources, creating supportive learning environments, and providing tailored training. This study adds to the current conversation about inclusive education by emphasizing workable ways to help delayed learners succeed academically.

Key words: Learning difficulties in mathematics, slow learners, inclusive teaching methods, counseling, and support

Introduction

In educational psychology, the idea of slow learners has been extensively explored, especially in connection to academic performance and cognitive development. A student who does not fit the requirements for an intellectual disability but whose IQ

is below average is often referred to as a slow learner. According to Reddy, Ramar, and Kusuma (1997), these people fall under the borderline or low-average intelligence category since their IQ values are usually between 70 and 85. Slow learners do not have major neurological impairments like kids with severe learning disabilities do, yet they nonetheless struggle to understand academic topics at the same rate as their peers. Because it emphasizes the necessity of focused interventions as opposed to broad special education accommodations, this distinction is essential.

Many academic obstacles prevent slow learners from advancing in their schooling. According to Dasaradhi, Rajeswari, and Badarinath (2016), one of the main problems is their inability to digest information rapidly, which hinders their capacity to keep up with classroom instruction. They frequently need more time and repeated explanations to grasp basic ideas, which causes them to become frustrated and lose interest in studying. Additionally, these students could have trouble with reading, writing, and math computations—all of which are critical for success in the classroom. Poor grades, low self-esteem, and a lack of desire to pursue further education are often the outcomes of their incapacity to perform at the required level.

Slow learners struggle socially and emotionally in addition to academically. Many people feel inadequate in comparison to their peers, which can lead to behavioral problems, anxiety, and despair. Continuous academic setbacks might cause some people to acquire an inferiority complex, while others may use disruptive behaviors or withdrawal as a coping strategy (Salomi & Meenakshi Sundaram, 2018). Their experience of loneliness may be exacerbated by the stigma attached to being classified as a slow learner, which can result in marginalization in the classroom. These pupils run the danger of dropping out of school or not realizing their full potential if they don't receive the proper help.

Since slow learning has many facets, it is crucial to investigate practical methods that can assist these pupils in overcoming their obstacles. Slow learning is influenced by a number of factors, such as individual characteristics, environmental circumstances, and emotional health. Learning challenges are caused by individual factors like weak problem-solving skills, memory retention problems, and attention deficiencies. These difficulties are made worse by environmental factors such as poor teaching strategies, a

lack of parental supervision, and a lack of educational materials. Academic achievement is also significantly hampered by emotional issues like stress, worry, and low self-confidence. A comprehensive strategy that incorporates counseling, individualized education, and supportive learning settings is needed to address these interconnected issues.

The purpose of this study is to give educators, legislators, and stakeholders evidence-based solutions to support slow learners by investigating the underlying reasons of slow learning and finding successful interventions. Comprehending the intricacies of slow learning and putting focused instructional strategies into practice will greatly enhance these kids' academic performance and help them succeed in their academic endeavors. Although mathematics is a core topic in the curriculum, many students find it difficult to understand its abstract ideas and demands for logical thinking. Slow learners among these pupils encounter particular difficulties that impair their ability to study mathematics. Slow learners frequently receive insufficient attention in community school settings, where resources may be scarce and class sizes are big, which exacerbates their academic challenges. This section offers a case study that was carried out in a community school to investigate the variables affecting the mathematical performance of slow learners. By analyzing real-world examples and drawing from existing literature, this study identifies key barriers to mathematical learning and proposes targeted interventions to address them.

Methodology

Using a qualitative research methodology, this study examines the difficulties encountered by slow learners and assesses successful methods for enhancing their academic performance. Because it provides a comprehensive understanding of the experiences, perceptions, and contextual factors driving delayed learning, qualitative research is especially well-suited for this topic. Qualitative research concentrates on obtaining deep, descriptive insights through observations, interviews, and document reviews, in contrast to quantitative approaches, which depend on numerical data and statistical analysis. This method allows researchers to evaluate the efficacy of different educational programs and capture the subtleties of individual learning challenges.

Several methods were used to collect data in order to guarantee thorough coverage of the study's goals. In order to build a fundamental knowledge of delayed learning and its consequences, a comprehensive assessment of the body of current research was first conducted. To find common themes, prevailing beliefs, and best practices for assisting slow learners, academic journals, government reports, and policy documents were examined. Second, case studies were looked at to give actual instances of the experiences of slow learners and the effects of various teaching methods. These case studies provided insightful information about the efficacy of particular interventions by including thorough documentation of student improvement, instructor observations, and parental input. Third, to obtain firsthand accounts of the difficulties faced by slow learners and the methods used to overcome them, interviews with parents, teachers, and counselors were undertaken. A greater comprehension of the ways in which home situations, educational strategies, and classroom dynamics affect academic results was made possible by these interviews.

Secondary sources of information were also used to supplement these qualitative techniques. In order to evaluate national or regional programs intended to assist these children, as well as to analyze broader trends in delayed learning, government publications, educational agency reports, and institutional records were examined. In order to obtain current research, professional viewpoints, and creative methods for teaching slow learners, online databases and reliable educational websites were also investigated. This research guarantees a comprehensive viewpoint on the topic by combining data from many sources.

Case studies were essential in enhancing the research's conclusions. A comprehensive investigation of how various teaching methods, counseling interventions, and support networks affect slow learners was made possible by in-depth reviews of individual cases. In one case study, for example, a youngster who struggled with reading comprehension and basic math was diagnosed with dyslexia and dyscalculia. The learner showed quantifiable progress over time with the help of focused intervention techniques, such as individualized tutoring, visual aids, and interactive learning resources. In a another situation, a slow learner who was experiencing emotional discomfort as a result of academic pressure was able to regain confidence and interest in studying through

counseling sessions and motivating techniques. These examples demonstrate the value of adaptive teaching strategies and the necessity of tailored approaches in tackling delayed learning.

This study attempts to give educators and policymakers a thorough understanding of sluggish learning and useful suggestions by using a multifaceted qualitative technique. Incorporating case studies, interviews, and secondary data guarantees a comprehensive investigation of the subject, enabling significant understanding of the intricacies of delayed learning and the best approaches to assist impacted pupils.

Finding and discussion

Identification of Slow Learners in Mathematics

It takes a sophisticated grasp of both cognitive and behavioral signs to identify slow learners in mathematics. According to Dasaradhi et al. (2016), slow learners typically exhibit delayed comprehension of mathematical concepts, struggle with basic arithmetic operations, and demonstrate inconsistent problem-solving strategies. In the context of this case study, slow learners were identified based on teacher observations, academic records, and direct assessments of mathematical proficiency. Students who consistently scored below average in standardized math tests, displayed hesitation during problem-solving activities, and required excessive repetition of instructions were classified as slow learners.

One of the case study's main conclusions was that slow learners frequently lacked basic numeracy abilities, which made it challenging for them to understand more complex mathematical concepts. For example, R1 had trouble with multiplication tables, which made it difficult for him to handle division and fraction word problems. R1 kept lagging behind his colleagues in spite of numerous attempts to reinforce these ideas through conventional instruction, underscoring the necessity for alternate teaching methods.

Causes of Slow Learning in Mathematics

A mix of instructional, environmental, and personal factors contribute to the difficulties faced by slow math learners. Low motivation, attention problems, and cognitive limits are examples of personal factors. Slow learners frequently struggle to maintain

concentrate throughout sessions, which results in gaps in conceptual knowledge (Chopra and Sharma, 2021). Math performance is further hampered by emotional factors like anxiety and failure-related fear. A number of students in the case study showed symptoms of math-related anxiety, including a hesitancy to contribute to class discussions or try solving problems on their own.

The mathematics skills of delayed learners are also greatly influenced by their surroundings. Poor academic results are caused by a lack of educational resources, packed classrooms, and inefficient teaching strategies. Large class sizes in the community school under observation made it difficult for teachers to give each student individualized attention, which led to low engagement from slow learners. Additionally, a large number of pupils came from homes where the parents lacked the skills or resources necessary to encourage mathematical learning at home. Negative attitudes toward mathematics were reinforced by a cycle of underachievement brought on by this lack of outside reinforcement.

The challenges faced by slow learners are exacerbated by instructional factors. Diverse learning styles are frequently not accommodated by traditional teaching approaches, which prioritize rote memory over conceptual understanding. The majority of the lessons in the case study had a strict format and offered little chance for practical application or illustration of mathematical ideas. Students like R1 were therefore unable to relate abstract symbols to practical uses, which limited their capacity to use newly acquired abilities in novel situations.

Learning mathematics can also be impacted by developmental and physical variables, such as unidentified learning difficulties or health conditions. For instance, R2, a study participant, had autism, which exacerbated her difficulties with focus and understanding. R3's scholastic difficulties were made worse by the loss of his father and the absence of parental support resulting from his mother's despair. These private and emotional situations emphasize how crucial comprehensive support networks are for dealing with sluggish learning.

Effective Interventions for Supporting Slow Learners in Mathematics

The case study examined a number of intervention techniques meant to boost academic achievement and confidence in order to solve the difficulties experienced by slow

math learners. Differentiated instruction, in which teachers modified lesson plans, delivery strategies, and evaluation formats to accommodate students' unique learning requirements, was one of the most effective strategies. For instance, to assist students in visualizing mathematical relationships, interactive whiteboards, number lines, and fraction bars were added. These resources improved understanding and retention by allowing slow learners to interact with mathematical ideas in a more concrete way.

The use of multisensory learning methods was another successful tactic. According to research by Aprinastuti (2020), adding kinesthetic and tactile components to arithmetic training can greatly enhance learning outcomes for students who learn math slowly. Abacuses, measuring devices, and counting blocks were among the manipulatives utilized in the case study to emphasize fundamental mathematical concepts. When given the chance to physically interact with learning materials, students who had previously difficulty with abstract concepts showed greater understanding.

Another effective strategy was found to be personalized tutoring. To resolve misconceptions in real time and reinforce fundamental abilities, teachers conducted one-on-one sessions. Students were given prompt feedback throughout these sessions, which helped them fix mistakes before they became second nature. Furthermore, motivational techniques like goal-setting activities, praise, and modest prizes promoted persistence and self-assurance.

Another important element of academic performance that was underlined was parental participation. In order to inform parents about practical strategies for promoting mathematical learning at home, educators arranged workshops. Simple techniques that reinforced classroom lessons included practicing counting throughout daily activities and demonstrating measurements using everyday objects.

Additionally, cooperative learning strategies that paired weaker students with more capable peers promoted active engagement and a sense of community. In order to lessen the stigma attached to being a slow learner, teachers made sure that group activities encouraged cooperation and respect for one another. This method increased self-esteem and social integration in addition to academic achievement.

Conclusion

The case study emphasizes how crucial it is to support slow math learners by taking

a comprehensive strategy. Teachers can carry out focused interventions that meet each student's unique learning needs by understanding how personal, contextual, and instructional elements interact. Personalized tutoring, multisensory learning, differentiated instruction, and parental involvement all help to establish a welcoming and encouraging learning environment. As the case study illustrates, these techniques can help slow learners become much more proficient in mathematics, enabling them to succeed academically and gain self-confidence. Findings and Conversation

According to the study's findings, individualized counseling, systematic progress tracking, and customized instructional tactics greatly help slow learners. Case studies show that slow learners' academic performance significantly improves when they receive tailored education and encouraging learning environments. For instance, a student who was diagnosed with dyslexia, dysgraphia, and dyscalculia had significant progress following specialist therapy. The learner initially needed a lot of help to understand basic mathematical concepts because they had trouble with basic arithmetic and reading skills. However, the student gradually improved their literacy and numeracy skills through a combination of individualized instruction, hands-on exercises, and visual aids.

Over the course of several months, the student's confidence in his capacity to learn and his ability to complete simple arithmetic both improved. This example demonstrates how well teaching strategies may be modified to meet the particular requirements of slow learners.

A sluggish learner who was enduring mental anguish as a result of academic pressure was the subject of another case study. The student frequently withdrew from classroom involvement and displayed displeasure during lessons, demonstrating symptoms of anxiousness and low self-esteem. Teachers and parents provided the student with emotional support and motivation following many counseling sessions. Goal-setting activities, positive reinforcement strategies, and facilitated conversations about conquering academic obstacles were all part of the counseling process. As a result, the student showed better academic performance, participated more actively in class, and became more engaged in learning.

This result emphasizes how crucial it is to address emotional obstacles in addition to

academic therapies in order to promote slow learners' complete development.

In addition to case studies, parent and teacher interviews offered insightful information on the efficacy of various instructional techniques. According to teachers, multisensory learning strategies, regular practice, and planned lesson plans all have a favorable impact on slow learners. It was discovered that visual aids like interactive whiteboards, charts, and diagrams were very helpful for slow learners when it came to understanding abstract ideas. In order to track their child's development and support learning at home, parents also underlined the value of keeping lines of communication open with teachers. Many parents thanked teachers for their help, pointing out that their child's academic development was greatly aided by their constant tolerance and encouragement.

The significance of keeping thorough progress logs for slow learners is one of the study's principal conclusions. Teachers and administrators emphasized that they were able to make well-informed decisions about instructional adaptations by keeping track of developmental milestones, behavioral changes, and academic accomplishments. Periodic exams, cumulative record cards, and progress charts were useful instruments for assessing student achievement and pinpointing areas in need of more help. Teachers might adapt interventions to fit changing requirements and guarantee ongoing academic improvement by methodically recording each student's learning experience.

Additionally, encouraging slow learners was made possible through the use of appreciation-based techniques. Enhancing self-esteem and fostering a more positive attitude toward learning were facilitated by acknowledging minor accomplishments, offering helpful criticism, and celebrating tiny victories. Teachers found that pupils who were encouraged often were more inclined to persevere despite difficulties and take charge of their own learning. This result is consistent with psychological theories that highlight the importance of intrinsic motivation in learning, indicating that a student's willingness to participate in educational activities can be greatly influenced by cultivating a sense of success.

References

Aggarawal, P., & Shambhu, S. (2016). *Recognition of Slow Learners Using Classification Data Mining Techniques.*

Aprinastuti, C. (2020). *Development of mathematics manipulatives for slow learners and*

dyscalculia students in elementary school by using Montessori's characteristics.

Arjmandania, A. A. (2011). *The Investigation of Parents' Attitude towards Inclusive Education for Slow Learners. International Journal on New Trends in Education and Their Implications*, 2(4), 9. ISSN 1309-6249.

Aslam, S., & Farooq, S. *M. Supporting Slow Learners in Learning Mathematics at Primary School Level. Journal of Elementary Education, Volume 27, No. 2, pp. 99–114.*

Azim, T. (2021). *Factors Affecting the Academic Performance of Slow Learners: A case study of slow learner school in Punjab.* MDSR IC - 2021, 30 Nov – 01 Dec 2021, Wah/Pakistan.

Badarinath, K. D. (2016). *30 Methods to Improve Learning Capability in Slow Learners.* India.

Barsel, M., & Lotfi, H. (2014). *The study of teaching Effective Strategies on students' Math Achievement. www.ispacs.com/metr*

Chan Y. C. (2022). *Does slow and steady win the race? Clustering patterns of students' behaviors in an interactive online mathematics game.* Education Tech Research Dev. https://doi.org/10.1007/s11423-022-10138-4

Chopra, R., & Sharma, K. (2021). *Factors Affecting the personality of Slow Learners. DOI: http://ijmer.in.doi./2021/10.07.236*

Cicco, G. (2012). *Designing innovative counseling courses: Combining technology, theory, and practice.I-manager's Journal on School Educational Technology, 7(4), 1–7.*

Craine, D. (1994). *Mathematics: Educational Tools for Diverse Learners. https://www.researchgate.net/publication/299827464*

Dasaradhi, K., Rajeswari, S. R., & Badarinath, S. (2016). 30 *Methods to Improve Learning Capability in Slow Learners. Retrieved from http://ijellh.com/wp-content/uploads/2016/03/60.Dasardhi-paper-final.pdf*

Genesee, F., & Upshur, J.A. (Eds.). (1996). *Classroom-based evaluation in second language education.*

Griffin, D. (2008). *Slow learners. A break in the circle. London: Routledge Flamer.*

Hussian, M. (2023). *Impact of Environmental Factors on Students' Educational*

Background and Their Future Performance. International Journal of Scientific Multidisciplinary Research (IJSMR), 1(6), 607–616.

Jain, J., & Danga, P. (2022). *The Psychosocial Factors of Slow Learners: A Comparative Study Between Government and Private Schools Students. The International Journal of Indian Psychology, 10(1), January-March 2022. DIP: 18.01.079.20221001, DOI: 10.25215/1001.079.*

Khan, S. M. (2008). *Education of slow learner. Retrieved from http://researcheducationedu*

Korikana, A. (2020). "*Slow Learners- A Universal Problem and Providing Educational Opportunities to Them to Be a Successful Learner". PEOPLE: International Journal of Social Sciences, 6(1), 29–42. https://doi.org/10.20319/pijss.2020.61.2942*

Malik, S. (2009). *Effect of intervention training on mental abilities of slow learners. Int J Educ Sci, 1(1), 61–64. Retrieved from http://www.krepublishers.com/02-Journals/IJES/IJES-01-0-000-09-Web/IJES-01-1-000-09-Abst-PDF/IJES-01-01-061-09-023-Malik-S/IJES-01-01-061-09-023-Malik-S-Tt.pdf*

Painagoni, K. M. (2018). *Role of teachers and parents in honing their hidden talents of slow learners. Retrieved on February 23, 2020 from http://ijaret.com/wpcontent/themes/felicity/issues/vol5issue3/kalpana.pdf*

Reddy, G. L., Ramar, R., & Kusuma, A. (1997). *Slow Learners: Their Psychology and Instruction (First Edition).* Discovery Publishing House, New Delhi.

Salomi, D. S., & Meenakshi Sundaram, A. (2018). *Slow learning - causes, problems and solutions. *International Journal of Management Technology and Engineering*, 8(2249-7455), 4212.*

Shaterloo, A., & Mohammadyari, G. (2011*). Student counselling and academic achievement. Procedia - Social and Behavioral Sciences, 30*, 625–628. https://doi.org/10.1016/j.sbspro.2011.10.121

Sultana, S. R. (2022). *Slow Learning: Exploring Some Causes. Journal of Emerging Technologies and Innovative Research (JETIR)*, 9(1), b348–b354.

Vasudevan, A. (2017). *Slow learners - causes, problems and educational programs. International Journal of Applied Research*, 3(12), 308–313.