Education Review Journal

A peer- reviewed open -access journal indexed in NepJol
ISSN 2976-1182(Print)
Published by Education Review Office, Nepal
Article History: Received on 8 May 2025; Accepted on 6 July 2025
DOI: https://doi.org/10.3126/erj.v2i01.86470

Challenges in the Development and Use of Educational Materials in Schools

Babu Ram Dhungana
Kathmandu University

Dr. Dhungana (https://orcid.org/0009-0002-9578-9034) works at Kathmandu University, School of Education. Correspondence regarding this article can be addressed to him at Kathmandu University, School of Education. Email: babu.thai@gmail.com

Abstract

This article critically examines the development and use of teaching and learning materials (TLMs) in Nepalese schools, highlighting their pivotal role in enhancing educational outcomes. Drawing on both national performance data and international research, the study identifies the lack of effective instructional material usage as a major contributor to poor student achievement in Nepal. The paper underscores the significance of diverse, contextually relevant, and low-cost materials including locally sourced and ICT-integrated tools in promoting student engagement, conceptual understanding, and retention. Despite supportive policies and government budget allocations, the integration of TLMs remains inconsistent due to challenges such as traditional teacher-centered practices, inadequate training, limited innovation, and insufficient institutional support. The article offers evidence-based insights into the effectiveness of TLMs and provides actionable recommendations for teachers, parents, school management, and government bodies to improve the development, accessibility, and classroom application of TLMS. Strengthening the use of TLMs is essential for transitioning to inclusive, learner-centered education and improving academic performance across Nepal's diverse learning contexts.

***Keywords**:* instructional materials, teaching learning materials (TLMs), Nepalese education, student achievement, learner-centered pedagogy, educational innovation, ICT integration

Introduction

Instructional materials are central to effective pedagogy, particularly in early education, where learners benefit most from visual, tactile, and interactive learning experiences. Materials co-created by teachers and students, especially those that are locally sourced and low-cost, are instrumental in fostering creativity, learner ownership, and contextual relevance. With the growing integration of Information and Communication Technology (ICT) in education, there is further potential to enrich the classroom experience through interactive and inclusive content. However, in many schools, particularly in Nepal, the development and use of such resources remain limited and inconsistent. This article aims to critically examine the current practices surrounding the use of teaching and learning materials (TLM) in classroom instruction in Nepal, assess their impact on students' performance, and analyze the associated challenges. It also seeks to explore strategic approaches to enhance the effective utilization of TLM in order to maximize student learning outcomes.

Educational Performances in Nepal

Despite various policy efforts, the performance of students in national achievement continues to reveal persistent challenges. According to the National Assessment of Student Achievement (NASA) 2020, only 32.1% of Grade 8 students met the basic proficiency level in mathematics, 37.7% in science, 58.8% in Nepali, and 51.1% in English, showing a significant decline compared to previous years (ERO, 2020).

The results from the Secondary Education Examination (SEE) 2024 show that only 47.86% of students passed, while 52.14% were categorized as non-graded, meaning they failed to achieve a minimum pass grade (Kathmandu Post, 2024). Similarly, the Grade 12 Examination 2024 reported a pass rate of only 52.91%, with 47.09% of students failing to meet graduation criteria (My Republica, 2024). These figures underscore systemic issues in curriculum delivery, teacher preparedness, and the use of educational materials.

Among various contributing factors, one of the primary reasons for the poor performance in school education in Nepal is the ineffective delivery of classroom instruction, which is largely attributed to traditional teaching methods. These methods predominantly rely on teacher-centered verbal instruction, with minimal integration of diverse teaching and learning materials (Education Review Office, 2020; Rai & Pokharel, 2025). Several studies have noted that such practices hinder

student engagement, limit the development of critical thinking skills, and contribute to suboptimal academic outcomes (Karki, 2022; Butterworth, 2023; Ghimire, 2024).

Teaching Learning Materials (TLMs)

Teaching learning materials (TLMs) are essential tools that enhance the teaching-learning process by making lessons more interactive, engaging, and effective (LEAD School, 2025). These materials encompass a wide variety of resources, including textbooks, workbooks, flashcards, digital media, and real-life objects, all of which facilitate a deeper understanding of academic concepts (Twinkl, n.d.; Thought Co, 2025). The primary purpose of TLMs is to bridge the gap between theoretical knowledge and practical application, thereby making learning more accessible and comprehensive for students (EduEdify, 2022). Furthermore, the strategic use of TLMs supports differentiated instruction, caters to various learning styles, and helps foster critical thinking and active participation among learners (Extramarks, 2025).

Importance of TLM

The integration of teaching learning materials (TLMs) into the educational process offers several important benefits. TLMs equip students with vital resources that help them understand concepts more effectively by visualizing complex ideas, thereby making learning easier and more enjoyable. Their use enhances retention, as audio materials, visual aids, and hands-on activities allow students to acquire information more efficiently than through traditional lecture-based methods. TLMs also foster creativity and imagination, encouraging learners to think beyond textbooks and develop their own unique ideas and solutions. Additionally, they cater to diverse learning styles, enabling students to engage with content in ways that best suit their individual needs. Finally, TLMs save time for both teachers and students; while teachers benefit from prepared materials to organize lessons, students can use these tools to reinforce and review what they have learned (Rathi, 2025).

Varieties in Teaching Learning Materials

Teaching learning materials (TLMs) come in various forms, each serving a unique purpose in enhancing the teaching and learning experience in the classroom. Textbooks and workbooks are standardized materials that provide a structured framework for delivering curriculum content. Visual aids, such as charts, diagrams, and models, are especially useful in subjects like science and mathematics, as they help students visualize and better understand abstract concepts. Digital learning

tools including e-books, online simulations, and interactive whiteboards, have transformed education by supporting remote learning and enabling personalized instruction. Experiential learning kits, such as STEM kits and virtual labs, offer hands-on learning experiences that are particularly effective in science, technology, engineering, and mathematics education. Additionally, storytelling and role-playing techniques are widely used in language and social studies classes to foster engagement and deepen students' understanding through immersive and interactive methods (Rathi, 2025).

Research-Based Evidence on the Effectiveness of Instructional Materials

The study conducted by Suleiman and Lawal (2020) revealed that instructional materials have a significant and positive impact on students' academic performance in technical education. The findings showed that a majority of students agreed that instructional materials made lessons more interesting and realistic, with 75% indicating enhanced interest and 85% acknowledging that these materials helped present facts more concretely and understandably. Moreover, 70% of the respondents stated that the use of instructional materials facilitated student participation, while 66% confirmed that such materials helped arouse their interest in the subject. The study also found that instructional materials supported better retention of knowledge, as 67.5% of respondents believed lessons taught with such materials were more memorable. Additionally, 63% agreed that these tools made technical education easier to understand, and 60% reported that they saved time during lesson delivery. The use of pictures, charts, models, and specimens was particularly effective, with 70% of students affirming that they had improved comprehension through these visual aids. Furthermore, 68% of participants noted the adequacy of practical materials, such as specimens, and 65% highlighted that models made learning more engaging. Overall, the research concluded that instructional materials not only enhance the effectiveness of teaching and learning but also increase students' appreciation and understanding of technical education content.

Another study conducted at Imam Khomeni Junior High School in Cape Coast Metropolis revealed that the use of teaching and learning materials (TLMs) had a strong positive influence on students' understanding and engagement in mathematics. According to the findings, a majority of students (71.4%) indicated that they understood mathematical concepts more easily when TLMs were used. Additionally, 57.1% of the respondents affirmed that the use of TLMs enabled them to make pictorial representations of the concepts learned, thereby supporting

visualization and better memory retention. TLMs increased active student participation in lessons, with 57.1% strongly agreeing that they were more involved in learning activities when such materials were used. Furthermore, 57% of students noted that their desire to engage in lessons was significantly enhanced through the use of instructional materials. These findings demonstrate that the integration of TLMs in teaching mathematics not only improves conceptual understanding but also fosters enthusiasm, creativity, and student-centered learning. The results reinforce the view that TLMs are essential in making abstract concepts tangible and in enhancing the overall quality of instruction in technical and mathematical education.

Recent studies conducted by Aluko and Babajide (2023) in Nigeria revealed that there is strong evidence of a positive correlation between the use of instructional materials and improved academic performance at the school level across diverse educational settings. Instructional materials including textbooks, visual aids, audio resources, and improvised teaching tools have consistently been found to enhance learners' comprehension, retention, and active engagement across various subject areas. It also revealed that students exposed to both standardized and improvised instructional materials significantly outperformed those who received conventional instruction without such resources. Similarly, in Cross River State, an experimental study on chemistry education showed that students taught with instructional materials achieved markedly higher academic results compared to those taught through traditional lecture methods. In the field of social studies, Olumorin and Aremu (2022) found a strong positive correlation ($r = 0.62$, $p < 0.05$) between the use of instructional materials and student achievement, emphasizing the effectiveness of tangible resources in improving learning outcomes.

Further supporting this trend, a study in Yobe State used a structural equation model to demonstrate significant improvements in English language comprehension and performance through the application of visual and audio instructional tools. In Rwanda's Musanze District, Uwitonze et al. (2022) reported notable gains in mathematics performance following the integration of instructional materials into daily teaching practices. Similarly, in India's Mayurbhanj district in Odisha, a 12-day instructional intervention using targeted materials resulted in an increase in students' mean scores from 24.15 to 28.72 ($t = 2.89$, $p < 0.01$), confirming the measurable impact of such interventions. Moreover, in Indian engineering colleges, the implementation of self-instructional materials significantly improved students' reading and writing skills, underlining their utility in supporting skill development in higher education contexts.

Collectively, these studies demonstrate that when well-designed instructional materials are effectively integrated into classroom practices, they can significantly enhance academic performance across disciplines and educational levels. These findings advocate for stronger policy support and investment in instructional material development and training to optimize learning outcomes.

Based on the study by Osei-Himah and Adu-Gyamfi (2022), the effects of instructional materials on students' academic performance in science education are understood through three key factors as perceived by teachers: sharing information, sharing authority, and teacher facilitation. Teachers noted that TLMs foster collaborative learning environments where students share knowledge through peer interaction, such as working in groups with materials, which enhances conceptual understanding.

Moreover, the effective use of TLMs shifts classroom dynamics from teacher-centered to student-centered learning. In this model, students are encouraged to predict outcomes, explore concepts independently, and engage in critical thinking, thereby taking ownership of their learning. TLMs also support teachers in acting as facilitators, guiding students through activities like observation, classification, and organization of scientific information. This inquiry-based approach promotes self-directed learning, builds confidence, and strengthens problem-solving abilities all of which are vital for academic success.

Although the study did not include direct measurement of academic performance outcomes, all participating teachers agreed that the use of TLMs contributes to a conducive learning environment in which students actively construct knowledge. This supports constructivist learning theory, which emphasizes the value of hands-on experiences in improving retention and the application of scientific concepts (Bada, 2015; Bušljeta, 2013, as cited in Osei-Himah & Adu-Gyamfi, 2022). However, the study also identified a critical gap in TLM implementation. Teachers reported significant challenges, such as limited access to technological tools (e.g., computers and internet) and a lack of adequate training in TLM integration. These barriers limit the consistent use of instructional materials and, as a result, may compromise their potential to improve academic performance. To maximize the benefits of TLMs, the study concludes that policymakers must address resource constraints and invest in teacher training programs that emphasize the practical application of instructional materials in classroom settings (Osei-Himah & Adu-Gyamfi, 2022).

TLM Provisions in Nepalese Schools

In the context of Nepalese school education, recent curriculum reforms have emphasized more practical and activity-based learning approaches, particularly at the junior level, where the use of instructional materials (TLMs) is strongly encouraged across all thematic areas. The national curriculum promotes learner-centered pedagogies, which inherently require the integration of relevant TLMs to enhance students' engagement and understanding. The Basic Education Curriculum for Grades 4–5 and 6–8 explicitly incorporates the use of instructional materials within the *Teaching-Learning Activities* section, emphasizing their role as a core component of the instructional methodology (Curriculum Development Centre [CDC], 2021). Various types of materials ranging from low-cost and no-cost items to low-, mid-, and high-tech resources are expected to be used depending on the content and context of instruction. Teacher guides explicitly outline the required materials for different lessons, and textbooks also refer to appropriate TLMs in several sections. Additionally, students are encouraged to participate in collecting simple materials, fostering active involvement in the learning process. Teachers receive training on how to develop, design, and use both handmade and commercially available instructional materials, with specialized training programs conducted to address subject-specific and learner-diverse needs. To support this, the Government of Nepal has allocated an annual budget to all public schools for the procurement and management of TLMs, including ICT-based resources. Each school benefits from this provision, receiving financial and technical support to integrate instructional materials effectively into their teaching practices, thereby strengthening inclusive and quality education across the country.

Key Challenges in the Development and Use of Instructional Materials

In the context of Nepal's school education, weak student learning outcomes are largely attributed to a lack of innovation in teaching and facilitation practices, which is closely linked to the ineffective development and use of educational materials. According to Dhakal (2020), the use of instructional materials in teaching geography at the secondary level is hindered by several challenges, including the non-availability of materials, teacher apathy, inadequate skills and strategies, financial constraints, inappropriate textbook content, limited instructional time, lack of administrative support, and the absence of a dedicated geography resource room. One major challenge is the persistent reliance on outdated, teacher-centered methods, with many educators hesitant to explore innovative, learner-centered

strategies that require diverse instructional tools. Even experienced and senior teachers, who understand the importance of instructional materials, often fail to implement them effectively in actual classroom settings. Another critical issue lies in the ineffectiveness of teacher training programs, which are often overly theoretical and supply-driven. These trainings tend to lack alignment with curriculum goals and real classroom needs, resulting in poor practical application. Additionally, there is a weak adoption of child-friendly pedagogies, as many teachers continue to replicate the traditional methods they experienced as students, resisting more modern and student-centered approaches. The use of educational technology remains minimal, with many teachers lacking familiarity with ICT tools and schools failing to integrate technology systematically into teaching. Furthermore, the dominant textbook-oriented teaching culture prioritizes syllabus completion over deeper learning, suppressing creativity, critical thinking, and inquiry among students. Lastly, institutional support and planning for instructional material development are severely lacking, with insufficient time, budget, and training allocated by schools and government bodies at the start of the academic year. These systemic challenges collectively hinder the effective use of educational materials and the realization of meaningful learning outcomes.

Addressing these challenges requires a multifaceted approach, including reforming teacher training programs to be more practical and context-specific, promoting the adoption of child-friendly pedagogies, integrating ICT tools into teaching practices, and ensuring institutional support for the development and use of instructional materials. By addressing these issues, Nepal can strive to enhance the quality of education and improve student learning outcomes nationwide.

Recommendations

Based on the challenges and policy directions regarding the use of teaching and learning materials (TLMs) in Nepalese schools, the following comprehensive recommendations are offered to various stakeholders including teachers, parents, School Management Committees (SMCs), and government bodies at all levels to enhance the collection, development, and effective classroom use of instructional materials:

For Teachers

Teachers should actively integrate TLM development and use into their daily lesson planning, selecting or designing materials that align with specific content areas and students' learning needs. They should collaborate with students in

collecting local, low-cost, and no-cost materials such as leaves, sticks, bottle caps, and old newspapers for thematic learning activities. Teachers should attend practical training workshops and school-based development sessions focused on designing TLMs, including ICT-integrated materials, and apply those skills consistently. Peer-sharing of effective TLM practices should be encouraged within schools to inspire innovation and foster the exchange of ideas.

For Parents

Parents should be sensitized about the importance of TLMs and encouraged to contribute household items or recyclable materials for educational use. They can support their children in collecting locally available resources that relate to the school curriculum and assist with small, home-based TLM activities (e.g., crafting models, creating charts). Parent-Teacher Associations (PTAs) can facilitate awareness sessions or campaigns to strengthen community involvement in preparing child-friendly materials.

For School Management Committees (SMCs)

SMCs should ensure that TLM development and use is included in the school's annual improvement plan and budget. They should monitor how TLMs are used in classrooms and work closely with school leadership to ensure proper storage, maintenance, and equitable access to instructional resources. SMCs should also help mobilize community support and partnerships (e.g., with NGOs or local businesses) for resource collection and funding.

For Local Education Authorities

Local education authorities should allocate targeted funds annually for the procurement of TLM, especially low-cost and digital tools, relevant to local languages and cultures. They should organize regular, hands-on training workshops for teachers and provide school-level technical support teams for ICT-based TLM integration. Local authorities can facilitate local-level exhibitions or TLM fairs, encouraging schools to showcase and share innovative materials and strategies.

For Provincial Governments

Provincial education units should develop clear guidelines for context-relevant TLM use in multilingual, inclusive, and rural classrooms. They should support teacher training institutes in designing curricula that focus more on material preparation and use rather than abstract pedagogy alone. Provinces can also coordinate between schools and higher education institutions to pilot and evaluate innovative TLM practices for broader adoption.

For the Federal Government

The Federal Government should institutionalize a TLM development framework within national education policies, with clear roles, funding provisions, and accountability mechanisms across all levels. Teacher training programs (both pre-service and in-service) must prioritize school-based practicums, hands-on workshops, and the integration of ICT for material development. A nationwide monitoring and mentorship program should be implemented to track the use of TLMs in classrooms, provide regular feedback, and ensure quality assurance. Public-private partnerships should be promoted to scale up the availability and digitalization of instructional materials for under-resourced schools.

By aligning the efforts of all stakeholders from the classroom to the federal level Nepal can establish a sustainable system where TLMs are actively utilized to enhance student learning, promote creativity, and support inclusive education practices.

Conclusion

The development and effective use of teaching and learning materials (TLMs) are foundational to improving the quality of education in Nepal, particularly in the context of learner-centered and inclusive pedagogy. Despite curriculum reforms and policy support, the actual integration of instructional materials into classroom instruction remains weak and inconsistent across many schools. National assessments and recent exam results clearly indicate a crisis in student learning, much of which can be attributed to conventional, textbook-driven teaching practices that fail to engage learners meaningfully.

Research findings from both national and international contexts confirm that well-designed and appropriately used instructional materials significantly enhance students' conceptual understanding, participation, creativity, and academic achievement. TLMs also promote active, experiential, and collaborative learning environments, aligning closely with contemporary educational goals such as critical thinking and learner autonomy. In Nepal, however, systemic barriers such as ineffective teacher training, limited resource allocation, inadequate use of technology, and poor planning continue to constrain the potential of instructional materials to improve learning outcomes.

To address these challenges, a coordinated and strategic effort is required. Teachers must be empowered through practical training and collaborative practices; parents and communities must be engaged in supporting the local collection and

preparation of materials; and school management committees must institutionalize the use of TLM in planning and monitoring processes. Local, provincial, and federal authorities each have a critical role to play in ensuring sustained investment, capacity building, and policy implementation for effective TLM integration.

Ultimately, transforming Nepal's educational landscape demands a shift from rhetoric to practice where teaching and learning materials are no longer peripheral but central to curriculum delivery and pedagogical innovation. Only through a multi-level, inclusive, and contextually responsive approach can Nepal fully harness the power of TLMs to enrich student learning and close the gap between policy aspirations and classroom realities.

References

Aluko, O. O., & Babajide, V. F. T. (2023). Effect of the use of instructional materials on senior secondary school students' achievement in biology in Oyo metropolis, Oyo State. *International Journal of Research and Scientific Innovation, 10*(1). https://rsisinternational.org

Butterworth, B. (2023). Improving learning in Nepali schools. *Nepal Times*. https://nepalitimes.com/news/improving-learning-in-nepali-schools

CDC. (2021). *Basic education curriculum (Grades 4–5 and 6–8)*. Government of Nepal, Ministry of Education, Science and Technology.

Dhakal, K. (2020). Challenges of Using Instructional Materials in Teaching Geography in Secondary School. *Journal of Geographical Research, 3*(3). https://doi.org/10.30564/jgr.v3i3.2144

EduEdify. (2022). The role of instructional materials in teaching and learning. https://www.eduedify.com/the-role-of-instructional-materials

Education Review Office. (2020). *National assessment for reading and numeracy 2020*.

Extramarks. (2025). Teaching learning materials or TLM: Meaning, types & objectives. https://www.extramarks.com/blog/teaching-learning-materials

Ghimire, S. (2024). *Hands-on pedagogies in science classrooms: Exploring Nepali teachers' perspectives on learning kits and inquiry-based science learning* [Master's thesis, University of British Columbia].

Karki, M. (2022). Teaching Methods: The Irrelevance of Teacher-Centric Techniques in the Classroom. *KMC Research Journal, 5*(1), 90–100.

Kathmandu Post. (2024, June 27). SEE 2024 results published. *The Kathmandu Post*. https://kathmandupost.com/national/2024/06/27/see-results-published-1719462631

LEAD School. (2025). Teaching learning materials (TLM) in education: Importance, types, and objectives. https://www.leadschool.in/blog/teaching-learning-materials

MyRepublica. (2024). NEB grade 12 results out: 52.91% pass the exams. *MyRepublica*. https://www.myrepublica.nagariknetwork.com/news/neb-grade-12-results-out-52-91-percent-pass-the-exams

Education Review Office. (2020). *National assessment of student achievement (NASA) 2020*. https://nepalitimes.com/news/why-do-so-many-nepali-students-underperform?utm

Olumorin, C. O., & Aremu, A. (2022). Correlation between instructional materials and students' academic achievement in Social Studies in selected schools in Nigeria. *Journal of Curriculum Development and Educational Studies, 2*(3). https://www.journals.lcu.edu.ng

Osei-Himah, V., & Adu-Gyamfi, K. (2022). Teachers' perspective of effective use of teaching and learning materials in basic school integrated science lessons. *Asian Journal of University Education, 18*(1), 256–270. https://doi.org/10.24191/ajue.v18i1.17195

Rai, A., & Pokharel, D. P. (2025). The dynamics of teachers' instruction in Nepali classrooms. *International Journal of Language Instruction, 4*(1), 20–32.

Rathi, M. (2025, April 17). Teaching learning materials (TLM) in education: Meaning, importance, and types. *LEAD School*. https://leadschool.in/blog/teaching-learning-material/

Suleiman, F. H., & Lawal, A. (2020). Effects of instructional materials on students' academic performance in technical education: A case study of Kabba Bunu Local Government Area. *Direct Research Journal of Social Science and Educational Studies, 7*(2), 25–30. https://doi.org/10.26765/DRJSSES130875629

ThoughtCo. (2025). TLM or teaching learning materials definition. https://www.thoughtco.com/teaching-learning-materials-8416

Twinkl. (n.d.). Instructional materials | Teaching/learning materials definition. https://www.twinkl.com/teaching-learning-materials

Uwitonze, J. D., Habimana, S., & Mukazera, R. (2022). Accessing the use of instructional materials on the learners' academic performance in Mathematics: A case of selected ordinary level secondary schools in Musanze District, Rwanda. *Journal of Research Innovation and Implications in Education, 6*(2). https://jriiejournal.com