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Hindu Values as Indigenous Knowledge System in Teaching Mathematics

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Abstract

The cultural and ritual aspects also play a significant role in learning mathematics with competency. Within the cultural and educational values in Nepal, Hindu values like discipline, the teacher-student relationship (guru-shisha tradition), and collective values have played a significant role in the teaching-learning process. These values can be understood as parts of the indigenous knowledge system based on Hindu philosophies. This study aims to explore how such values can be considered as part of indigenous knowledge applicable to mathematics education. Research was conducted in six community secondary schools in the Rukum West district of remote western Nepal. Qualitative facts were collected from teachers, students, and related curriculum documents in the selected schools. A small three-week Hindu values-related intervention class was made in eighth-grade mathematics students in six selected schools, and in-depth interviews, focus group discussions, and class observations of those groups were done. A thematic analysis was done, and the findings were that teachers and students both expressed that learning using Hindu values such as discipline, teacher-student relationship, and collective values has a positive impact on students' mathematics learning, and students have also experienced that which refers to Hindu values should be substituted as an indigenous knowledge system for the research area.

Keywords:- Hindu -Values, Collective Values, Teacher Student Relationship, Indigenous Knowledge

I. INTRODUCTION

Learning mathematics is not merely about understanding concepts and specific patterns; the process of learning mathematics is also closely related with the cultural and social contexts of the society in which students live (Procopio, 2026). Studies by Acharya et al. (2021) have concluded that the cultural dimensions of learning mathematics make a positive contribution in Nepal. In the context of Nepal, where most of the population (81.2%) are Hindus (NSO, 2021), the Hindu population in the Rukum West district of Nepal's Karnali Province stands at 97.53% (NSO, 2021). Hinduism is an extensive belief system about an innumerable of philosophical and cultural traditions (Nadkarni, 2013). Elements such as the importance of discipline, regular practice, patience, respect for knowledge, self-reflection, cooperation, and the Guru-shishya (teacher-student) paradigm can be used to foster learning mathematics effectively (Mascarenhas, 2018). The justification for this research is linked to contemporary problems related to mathematical achievement. The National Assessment of Student Achievement (NASA) 2020 performed by the Education Review Office (ERO, 2020) aimed to assess the learning outcomes of Grade 8 students in various fields, including mathematics. A national-level audit such as NASA 2020 indicates a pressing need to resolve the issues related to mathematical learning. If the problems affecting mathematical achievement stem from a lack of cultural valuation (Acharya et al., 2021), it is essential to explore how students' cultural backgrounds, learning experiences, and local knowledge can be incorporated into the existing approaches of teaching mathematics. Making connections between students' cultural practices and particular topics and activities associated with their mathematical learning has the potential to increase the relevance and appeal of the subject in the classroom. This is not intended to presuppose or promote any specific religious agenda; rather, it seeks to determine how the values and practices familiar to the local society might intersect with the concepts and practices of mathematics education. The study was conducted in Rukum West, a region characterized by a strong presence of Hindu cultural and religious heritage 97.53 Hindu population (NSO, 2021), a setting

where levels of mathematical achievement are notably low (ERO, 2020). Specifically, it looks at how Hinduism principles and practices in the community schools of Rukum West affect mathematics. Additionally, it tries to establish if and how mathematics can be taught using Hinduism values together with the local community's customs and traditions. In other words, it focuses on the link between culture-bound practices and mathematics education, specifically the role Hinduism values play in it. Therefore, this paper adds to the existing body of work on mathematics education by also trying to address the culturally relevant issues in the curriculum. It should be noted that this research does not assert that the mere application of Hindu values in mathematics instruction automatically yields benefits. Instead, its objective is to identify, interpret, and analyses the educational relevance and potential of Hindu values and practices within the context of learning mathematics. In this context, this article aims to make a significant contribution to the field by identifying the role of Hindu values in mathematics education also as indigenous knowledge system in rural community schools.

1.1. Hindu` Values

In this study the concept of Hindu values is mentioned to such ideas as discipline, the teacher-student relationship (guru-shishya tradition), and collectivism, which are commonly found in ancient Hindu educational practices and the gurukul system. Discipline is understood as the set of qualities that a student is expected to demonstrate, including punctuality, regular attendance, self-control, devotion to studies, concentration, and a responsible attitude to their tasks. The teacher-student relationship (guru-shisha tradition) implies the ethical and behavioural expectations from a teacher, including dignity, integrity, and a respectful and trusting attitude to the student, as well as the teacher's ability to serve as a role model and the teacher's and student's respect for each other's knowledge. Collective values are related to the collective and supportive attitude towards the group of people who share similar goals, respect for each other's views, cooperation, shared responsibilities, and involvement in the common tasks. In this research, Hindu values are not interpreted as religious norms, beliefs, or superstitions but are presented as educational principles that can be established as contemporary concepts of indigenous pedagogical system.

1.2. Objectives

The main objective of this study is to conduct a qualitative study seeking an indigenous knowledge mechanism on Hindu values in the context of teaching mathematics. This study specifically seeks answers to the following question: How are the principles of Hindu values reflected in mathematics teaching practices? How have disciplines, teacher-student relationships, and collective values influenced teaching and learning mathematics? And do the Hindu values play a role in the indigenous knowledge system in the mathematics classroom?

II. LITERATURE REVIEW

This study specifically examines Hindu values as an indigenous knowledge system in the context of the Hindu-culture-dominated society of remote Nepal. Hindu values are related to Eastern philosophy and culture, exploring their educational relevance, utility, and potential for effective use in the classroom teaching-learning process. Under Hindu values traditions, the teacher is interpreted not only as a source of knowledge but also as a guide, motivator, and moral ideal, while the student is accepted as an active learner, inquisitive, and self-seeking individual. This type of approach is expected to make a significant contribution to the development of dialogue, collaboration, experiential learning, self-reflection, ethical conduct, and social responsibility in the classroom. Since the objective of this study is to analyse the cultural and pedagogical aspects innate in Hindu values and clarify if they can be integrated into the contemporary teaching-learning process as indigenous knowledge patterns. Reviews of various national and international studies related to this topic shows that there is some pedagogical importance innate in cultural and social patterns in Eastern (Hindu) tradition., although the cultural and pedagogical aspects of Hindu values and the link between them to the modern classroom teaching-learning process seem to be relatively limited. This study was designed to address this research gap.

Among the previous research related to this study, one is the research of Radha et al. (2016), titled Math Education Across Cultures: A Comparative Analysis of Global Approaches, compared mathematics teaching practices in different countries around the world to understand how cultural and social values influence teaching practices and to analyse the importance of cross-cultural experiences for improving mathematics education at the international level. They analysed mathematics teaching practices, curricula, teacher approaches, student behaviours, and education policy documents from different countries using comparative study methods. In which, school systems, teacher practices, and international assessment data (e.g., TIMSS, PISA) from Eastern and Western countries were used as the basis. The study found that mathematics education in Eastern countries is based on discipline, a teacher-centred approach, and collective values, which are defined as Hindu values in this research. In Western countries, greater emphasis is placed on individual problem-solving capacity, critical thinking, and innovation. Furthermore, it is noted that cultural and social values influence the structure of teaching practices and student achievement. This highlights the importance of cultural context in the international exchange of teaching practices.

(Raju, 2007) has also analysed the nature of mathematical proof and the transmission of the calculus from India to Europe in the 16th century. He has reviewed historical documents, mathematical texts, and primary sources from India and Europe using historical-philosophical analysis with the aim of analysing the spread of calculus and the transfer of proof from India to Europe in the 16th century and relating the Indian mathematical approach and its cultural basis to contemporary teaching and science. In which it is claimed that the use of proof and logic in the Indian mathematical approach has had a cultural impact not only on mathematical development but also on teaching methods and that Indian philosophy and logic systems have challenged the Western formal mathematical system.

Acharya (2015) conducted a study titled 'Relevance of primary level mathematics education in Nepal: A cultural perspective'. He conducted the study with the aim of identifying the need for a cultural perspective in primary level mathematics education in Nepal. His research was qualitative, and the results were analysed using curriculum analysis, teacher and student interviews, and classroom observations. The research showed that since traditional curriculum and practice alone

cannot support students' real understanding and conceptual clarity, linking mathematical concepts with cultural experiences and local knowledge systems can increase students' interest in learning and positively motivate learners to learn mathematical concepts. Similarly, Lamichhane & Luitel (2023) also conducted a similar study titled "A critical rendition to the development of mathematics education in Nepal: An anticolonial proposal." He conducted his research with the aim of critically analysing the historical development, colonial influence, and cultural relevance of mathematics education in Nepal. By reviewing existing literature, educational documents, and policy documents using historical and policy analysis methods, he claimed that mathematics education in Nepal has traditionally been formal and teacher centred. The research suggests that the continued influence of British-era Indian culture and similar traditional practices have affected teaching and learning and have not adequately addressed local cultural values and cultural norms among learners, which has led to a decline in students' creative and critical thinking skills.

In the context of Nepal, Acharya et al. (2021) have studied cultural relevance in mathematics education. They interviewed five teachers and found that the use of mother tongue, local knowledge, and ethnomathematics has a positive impact on student learning. This study indicated that curriculum developers should design curricula that incorporate local culture, language, and student experiences, which can only ensure the long-term impact of students' conceptual understanding and learning. The Hindu under Eastern perspective also emphasizes the need to focus on teaching systems that focus on students' values, discipline, and practice.

Various studies have shown that teaching based on local cultural context helps students connect with real life, which increases the effectiveness of learning (Khadka & Parajuli, 2025). In addition, the inclusion of cultural context brings diversity and inclusion to mathematics education, which helps ensure the participation and success of all students. It is clear from the available literature that mathematics education is not limited to formulas and problem solving. Its impact is deeply related to the social, cultural, and linguistic background of the student. Incorporating Eastern philosophy and, especially, local social value related practices and local culture into learning enhances students' awareness, engagement, conceptual understanding, and long-term learning. Such values are Hindu values for society in remote Nepal because most of the population is dominated by Hindu customs. According to the census report of Nepal, the percentage of Hindus in the study area, Rukum West district, is 97.53 (NSO, 2021). However, qualitative studies on Hindu values under Eastern philosophy in Nepal are limited. There is a need for interest and contributions from stakeholders, teachers, students, and curriculum developers. Since the inclusion of culture, language, and philosophical values in mathematics teaching plays an important role in enriching teacher strategies, curriculum development, and student learning experiences, future research should explore ways to make these approaches more effective in the diverse linguistic and cultural contexts of Nepal.

III. METHOD

The nature of this study is qualitative. Using a qualitative approach, teachers' and students' experiences, values, and cultural perspectives were understood in depth. The sample selection was done through the purposive sampling method, which includes mathematics teachers and students (secondary level) from six community schools from the West Rukum district, Nepal.

3.1. Intervention Program

In this study, the interventions used were based on Hindu values. The mathematics teachers in six selected schools were advised to incorporate Hindu values while teaching mathematics as an intervention strategy. For this, grade eight students at selected schools were taken. The teachers were asked to hold their regular classes for three weeks before integrating the intervention. They were requested to take approximately ten minutes from each regular class period to instruct and discuss Hindu values relevant to the lesson they were going to cover. The following values were stressed-discipline, teacher-student relationship, respect, and cooperation. The teachers associated the values with the students' attitude towards mathematics and the approach to studying the subject. Researcher designed the intervention in such a way that it would complement the regular classes and not replace them. Researcher's intention was that the intervention would increase the students' awareness of the behavioural and cultural aspects of Hinduism and give them an opportunity to integrate the values into their mathematics classes.

3.2. Socio-Cultural Context of Research Area

For the study, six public secondary schools located within Musikot Municipality in the Rukum West district were selected using a purposive sampling method. The socio-cultural context of the study area was characterized by Hindu traditions, rituals, and practices. However, the prevalence of Hindu cultural practices did not necessarily equate with the religious beliefs or personal convictions of all the participants.

3.3. Data collection process

Qualitative data were collected with in-depth interviews, focus group discussions, and class observation. From the six chosen schools, six participating teachers, and twelve students, in-depth interviews were conducted three weeks down the line after the intervention. Questions were developed to elicit information on participants' experiences gained from the intervention, changes observed in the mathematics teaching and learning process, teacher-student relationship, collaboration, and challenges faced during the intervention. In addition to interviews, six focus group discussions (FGDs) were held, one at each of the six schools involved, comprising six participants each, where five FGDs were made up of students not interviewed individually and one class teacher who had been interviewed individually. The discussions focused on experiences gained from the mathematics teaching and learning involving Hindu values, discipline, regular practice, teacher-student relationships, mutual respect, collaboration, and collective responsibility. Participants shared their experiences individually and in response to views expressed by other members of the group, giving examples of their experiences. In this way, similarities and differences of the

views of participants in different schools were elicited. Consequently, observations of the intervention lessons, especially mathematics lessons in the intervention groups, were conducted at all six schools involved on a regular basis to obtain data on such issues as student participation, regular practice of mathematics, teacher-student relationship, mutual respect, group collaboration, problem solving, and responsibilities. Issues and incidents worthy of note were recorded in the researcher's diary as the basis for situational analysis of the information obtained from interviews and focus group discussions. Analysis of data collected through interviews, focus group discussions, and observations was done thematically. This involved reading through the data several times, marking interesting or important segments, developing initial codes, grouping related codes together, and coming up with themes for discussion and analysis. Though discipline, teacher-student relationship, mutual respect, collaboration, and collective responsibility formed the themes for analysis, other themes that emerged from the data were also considered. Information obtained from interviews, focus group discussions, and observations was compared, and the research findings were reported thematically.

In addition, data analysis was conducted by studying curricula, textbooks, policy documents, and literature related to Hindu values. The data collected in this research was analysed in detail using the thematic analysis method. The interviews obtained during the research process were transcribed literally, and the meanings contained within each phrase, idea, and concept were systematically coded. Through this process, various patterns and major themes related to the research objective were identified through coding. These themes were compared with the basic concepts of Eastern philosophy, such as meditation, self-reflection, value education, and collective knowledge, on the one hand, and with traditional mathematics teaching practices in selected schools, teaching-learning methods, student participation, and the role of the teacher, on the other. The process of comparison and interpretation thus not only strengthened the research from a theoretical perspective but also provided a deeper understanding of the potential contribution of Eastern philosophy to the mathematics teaching system in a practical context. Ultimately, the findings from the analysis not only answered the research questions but also prepared a context and basis for future research. Triangulation (interviews, FGDs, document analysis) was used to establish reliability.

Ethical deliberations were also considered during this research. Permission from school authority (headmaster) to make the study was obtained from all six schools that were selected. The students were told the research objectives, nature, procedure, and teaching-learning activities, and their agreement was obtained. During interviews and group discussions, the participants were told that their expressed experiences would be documented, and their permission was required. The participants were also told that the report's findings would not use their real names but instead their code names and that their personal information would be kept confidential. The intervention activities that were carried out during the research were done within the Grade 8 curriculum, grade-level objectives, and instructional procedures. Each intervention activity was appropriate for the students' age and did not involve any elements that could harm their physical, mental, and emotional well-being. The students' dignity and privacy were respected, and their confidentiality was maintained throughout the research. Also, the participants had the right to withdraw from the study voluntarily, and the findings were used exclusively for the research's purposes.

IV. FINDINGS

The qualitative data collected were analysed using Thematic Analysis. They include semi-structured interviews with six teachers and twelve students from six community secondary schools, six focus group discussions (one for each school), observation notes from the intervention implemented for three weeks in the school, observation notes recorded in a diary, and relevant documents. The data collected were examined by identifying relevant segments, assigning similar or related codes to them, and grouping these segments. Three main themes were identified, including discipline, teacher-student relationships, and collective values and collaboration. The themes emerged from the analyses of participants' experiences, observations, and documents. The themes and their sub-themes are presented below according to the main themes and their related issues

- Discipline creates an organized, focused, and positive classroom environment for mathematics learning.
- Teacher-student relationships develop trust, participation, and student confidence in mathematics learning.
- Collective values strengthen mathematical learning through collaboration, shared responsibility, and mutual support.

4.1. Discipline and Mathematical Practice

Discipline was discussed during interviews with six teachers and twelve students from the six schools during a three-week teaching intervention. When asked about sources of discipline, the participants talked about arriving in time and practicing regularly, concentrating and sitting quietly, and taking responsibility for their own learning. In presenting the participant's experiences, the discussion looked at what students say about discipline and how teachers can promote discipline in the classroom. One of the participating students S_3 said that previously, it did not matter if they did not do their mathematics homework. Now they have come to understand the importance of regular practice and listening carefully in class. They realized that regular practice was necessary to understand mathematics.

A participating teacher T_2 said, "Discipline is not just about sitting quietly. I tried to help students understand that discipline also includes arriving in class on time, practicing regularly, doing one's own work, and asking about things one does not understand."

In addition, the researchers observed that in classrooms, students were encouraged to practice regularly; the teachers reserved time for practice and reminded the students to follow a stepwise procedure for solving mathematical problems. The idea of self-restraint and regular practice falls under the Hindu philosophical traditions. This theme looks at how concepts related to Hindu philosophical traditions appeared in the teaching and learning processes.

4.2. Teacher-Student Relationship and Mutual Respect

The guru-shishya (teacher-disciple) relationship in the Hindu tradition guided some of the ideas used to identify the themes. The relationships were more than just a system for helping students follow instructions. The relationship covers the processes of acquiring knowledge, discussing and sharing knowledge, and facilitating learning. Through interviews and focus group discussions, the study explored the nature of the interactions that teachers and students experienced together during the intervention. The classroom observations looked at how often the teacher's provided guidance for solving mathematical questions, how much opportunity was given to students to ask questions and express their own ideas, and how much respect was shown for the views of teachers and other students.

A participating student S_6 said: "Before this, I used to be a bit shy to ask the teacher about things I did not understand. Now, I feel that I can communicate openly with the teacher about things I want to understand. Being close to the teacher also makes my studies easier."

Another teacher T_3 said: "Loving and caring for the child, and being close to them, this has always existed among us, but it seems that we have not been doing it enough within the classroom. This exercise is a lesson to us that we need to be close to the children to know their problems."

The diary notes by the researcher in which teachers talk about reiterating concepts, making students ask questions, and students talking to teachers about their problems reflect the need to operationalize care and affection which stems from collective cultural values. This theme thus provides answers to the following question: How can the notion of guru-shishya (teacher-disciple) which is embedded in Hinduism be interpreted in math class?

4.3. Collective Values, Collaboration, and Responsibility

The third theme was about collective values, with collaboration, exchange of ideas, mutual help, and shared responsibility being some of its aspects. For instance, when doing mathematics, students solve problems individually as well as in groups, have discussions, share ideas, and work together on assignments. This study sought to discover how collective values that are emphasized in Hinduism were practiced in mathematics classes. During focus group discussions, the researcher asked students and teachers about their experiences when working together and supported by each other. The researcher also observed classroom interactions where students interacted with each other and worked together on assignments, shared ideas, and split responsibilities. By comparing the evidence gathered from observations and interviews, the following themes about collaboration and shared responsibility were generated:

A participating student S_1 said: "When you are in a group solving a math problem, one friend gives a different opinion from another friend. In this case, it is always good when you do not understand something your friend teaches you. When working together, each gives their opinion."

A teacher T_4 said: "Before, when I would do the tasks myself, I would explain them to the students. After this, the students "It became even clearer that students need to be given opportunities to discuss things in groups, share their ideas, listen to each other, and work together to find solutions. This can also help them to take responsibility for their own tasks."

The student describes collaboration in terms of sharing ideas and learning from each other, while the teacher talks about discussing and sharing ideas so that students become responsible for their own learning. Since similar instances of students collaborating were observed during observations, this gives a chance to connect the experiences described by participants with actual behaviours that were witnessed. This theme thus connects to Hinduism through collective values and responsibilities.

V. DISCUSSION

5.1. Teachers' perspectives

The experiences shared by teachers through interviews and focus group discussions make it clear that learning with local cultural context under Hindu values (such as discipline, teacher-student relationship, and collective values) makes significant contributions to mathematics learning. Teachers have stated that when students understand concepts in their own social cultural values, they are able to understand the real meaning and concepts in depth, not just memorizing formulas. Teachers have experienced that this has helped to make the learning process more personalized and effective. According to Eastern or Indian cultural (Hindu) values, the importance of integrity, discipline, and continuous practice is paramount in the education system (Sarkar, 2024). Teachers have noted that regular practice, group learning, and teacher-student relationships increase students' mental discipline, problem-solving skills, and persistence in learning.

5.2. Student Experiences

Students have experienced that the use of local examples and cultural contexts increases interest and understanding in mathematics learning. Students reported that mathematical concepts become more interesting when real-life examples, traditional measurement systems, and local cultural practices are incorporated into the classroom, and they also reported that when such things are incorporated into the mathematics classroom, they find it easier to focus on mathematics and other difficult subjects. This has been found to greatly encourage learners by shifting from the doubtful view that learning is only for exam preparation to the idea that learning is also about improving conceptual understanding and long-term memory, and that it is closely linked to an individual's social life. Students have experienced that Hindu values beliefs such as discipline teacher student relationship facilitate the understanding of difficult mathematical concepts. They have also expressed feelings that while the currently dominant Western methods are more individualistic, Eastern methods are more collaborative, indicating that teamwork, teacher-student relationships, and continuous practice lead to long-term learning. A Chinese study by (Tang et al., 2021) also found that students' values, mental discipline, and practice-based learning are closely related to long-term success and conceptual understanding.

5.3. Curriculum and Document Analysis

Analysis of curriculum and textbooks has shown that current mathematics teaching has some limitations in terms of local knowledge and cultural context. Textbooks and teaching materials of mathematics education in secondary school in Nepal do not adequately incorporate cultural and philosophical contexts. Teachers also reported that exercises and examples in some textbooks are often based on Western perspectives, which makes it difficult for students to connect with real life. In addition, policy documents do not provide clear guidance on incorporating cultural and linguistic diversity in teacher training. (Gautam & Lowery, 2025) have also shown that the use of local cultural knowledge is challenging in rural schools when teacher training and resource materials are limited. This indicates that cultural and philosophical perspectives need to be prioritized in curriculum reform and teacher training. Compared to the literature (Khadka & Parajuli, 2025; Khanal, 2016; Khanal et al., 2021; Turmuzi et al., 2024), this study affirmed that the cultural and philosophical perspectives are essential elements, which are influential in not only mathematics education but also students' values, personal discipline, and lifelong learning. The experiences of both teachers and students have demonstrated that, in countries like Nepal (which share a similar cultural background) practices rooted in Hindu values are effective in strengthening the learning process. The students' experiences have verified that while Western methods are emphasizing individual freedom, the Eastern practices guarantee lifelong learning through collectivism and discipline. This implies that the mathematics education can be complete and effective only incorporating the local cultural perspectives and values into the curriculum, which means that the curriculum and teacher training reforms in Nepal need to account for cultural and philosophical perspectives. It means teacher perspectives, student experiences, and document analysis verify that the combination of Hindu values in mathematics education have a positive influence on lifelong learning, engagement, and mental discipline. This provides guidance for improving mathematics education in a multilingual and multicultural country like Nepal.

VI. CONCLUSION

This study confirms that Hindu values play an important role not only in Nepali mathematics education but also in students 'personal discipline, conceptual understanding, engagement, and long-term learning. Teacher and student experiences have shown that when social and cultural values are mentioned in school, the learning achievement is effective. Findings from interviews, focus group discussions, and document analysis have confirmed that the Hindu values of Eastern philosophy, such as discipline, continuous practice, collective values, and teacher-student relationships bring long-term sustainability to learning. Therefore, this study concludes that Hindu values has includes some indigenous pedagogical patterns and it is important to further mention. Since 97.53 percent of the society is dominated by Hindu cultural values in the study area, only a combination of practices based on Hindu values and local cultural context can effectively enhance student engagement, conceptual understanding, and long-term learning. Thus, using local and cultural contexts increases interest in mathematics learning, conceptual understanding, and long-term learning ability. Hindu values have not yet been fully incorporated in mathematics teaching in Nepal. Teaching materials and textbooks in government schools do not adequately incorporate cultural and philosophical contexts. This study shows that in the case of the society of West Rukum, Musikot Municipality, it is necessary to mention Hindu values in school curriculum as indigenous knowledge system.

6.1. Recommendations

Based on this study, some important recommendations can be made. Local culture, history, and Hindu values should be incorporated in curriculum development. This makes it easier for teachers to adapt the curriculum to the local context and connect students to real life. Next, it is necessary to prioritize the use of Hindu values. This study provides guidelines for connecting mathematics education in Nepal with cultural, philosophical, and spiritual perspectives in the future. A combination of curriculum reform with accepting Hindu values as indigenous knowledge system is important issues need to be mentioned. The study also indicates that, the improvement of mathematics education in Nepal is not limited to the methodological changes alone but also requires the inclusion of cultural, and philosophical dimensions in the curriculum, teacher practice, and assessment system.

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