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# PROMOTING INCLUSIVE MATHEMATICS CLASSROOM PRACTICES IN THE SCHOOLS OF NEPAL: AN ETHNOGRAPHIC INQUIRY

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#### Abstract

The main aim of this study is to investigate the challenges faced by teachers while conducting inclusive mathematics classroom practices and to explore the possible ways for promoting inclusive mathematics classroom practices. The design of this study was in qualitative nature within ethnographic approach. I took interview with mathematics teachers and math educators as the research tools to collect the required data. I have maintained a dairy for the purpose of recording information at the time of interview with my key respondents. Every recorded data was transcribed, coded, build themes and triangulate themes. And, finally the study concluded with the findings: disengaged curriculum, non-participatory teaching/learning practice, follow monoculture practices in multicultural mathematics classroom, lack of technology integrated pedagogy, imbalance theory and practices were major challenges for implementing inclusive mathematics classroom practices. On the top of that, engaging students in the classroom, shifting from exams to diversified assessment, group work, use of technology appropriately, encouragement students to participate the learning process, using different strategies in teaching – learning mathematics in the classroom, teaching mathematics linking with students daily life context, implementing collaborative learning, implementing equity pedagogy in the mathematics classroom, teaching mathematics through dialogical approaches and comprehensive assessment system are found as the means for good inclusive practices.

**Keywords:** Promoting; Inclusive Practices; Diversity; Challenges; Coping.

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## 1. Introduction

Nepal is mosaic of diversity and member of United Nations since 1955. Several casts and religious diversities define our social fabric. Nepal has been recently introducing to the federal democratic system which can only be institutionalized by adapting inclusive education. The Constitution of Nepal 2015, has strongly accepted the social inclusion to be one of the most critical concerned to

fundamentally addressed and adaption of free, compulsory and right based approaches to education. Several related documents about inclusive education motivated me, inclusive education addresses the diversity of learners, encourage active participation, collaboration, create child-friendly environment, child-centered pedagogy, respect individual difference and their culture in school as well as on classroom.

Inclusive education (IE) has been defined as learning environment that promotes the full personal academic and professional development of all learners irrespective of race, class, color, gender, disability, sexual preference, learning styles and language (NCSNET, 1997). It welcomes all learners without any discriminations and provides education with capabilities as an equity based. Collaboration and teamwork are essential approaches for inclusive practice in the classroom learning. It is not concern only to theoretical perspective but its emphasis classroom practice to for addressing and responding the diversity, needs of all learners on classroom in school and on the society. Therefore, I have influenced to discuss the understanding and practice of inclusive mathematics classroom practice through inclusive education on multicultural perspective.

An inclusive mathematics classroom provides high-quality mathematics education for all students. The environment of the classroom should be interesting, inviting for all students. It should display student works as well as other materials that show a diverse group of people involved in mathematical activities and careers.

The policies about inclusive education and child-centered educational environment are being highlighted by Education for All (EFA) 2002, School Sector Reform Program (SSRP) 2009 and other educational institution asset that profile being implements well. The general mathematics considered as social creation, universal language whereas the way of teaching learning mathematics, such as simple operations and counting, estimating and calculating are culturally dependent, therefore are found different. Multicultural aspect focuses on content integration, knowledge construction, prejudice reduction, equity pedagogy and empowering school culture which all strongly concerned to inclusive mathematics classroom practice. Thus, there are various challenges to address social, cultural mobility in mathematics classroom.

The Department of Education of Nepal (DOE) (2012), has defined inclusive education as liberal education system that believes in the child centered pedagogy, respect multicultural and multilingual orientations in a non-discriminatory environment. Inclusive mathematics classroom aims to provide equal opportunities to the learners on the basis of equity and equality approach with respecting their individual backgrounds.

The teachers come across several challenges in mathematics classroom so they must have to compete, teach learners according to their needs and expectation. It seems to consider the situation of mathematics classroom practice. In this context, what are the challenges that the teachers explicated in inclusive classroom practices? And in what ways they cope with the challenges? Questions occurs in my mind so I am motivated to write this paper.

# 1.1. Objectives

The specific objectives of this paper are as:

- 1) To investigate the challenges faced by teacher to conduct inclusive mathematics classroom practice.
- 2) To explore the possible ways for promoting inclusive mathematics classroom practices.

# 2. Research Methodology

This paper is based on qualitative design. The qualitative research concerns with social phenomena as they occur naturally. It emphasis on unique case orientation and aim at description, exploration and discovery using 'wide-angle' and 'deep-angle' lens approach to examine the breadth and depth of phenomenon (Koul, 2009). The qualitative research used the context and setting to search for a deeper understanding of the person being studied (Best & Kahn, 1999).

Namuna Machhindra Secondry School Lagankhel Lalitpur and Shamudara Secondary School Shivapuri Nuwakot were the study site of this research. Both of these schools were present diversified students in terms of cognitive, social and cultural so these sites were the suitable for fulfil the objectives of my research that's why I selected these research sites of this study.

As it is a qualitative inquiry, the sample size in this study is small. Qualitative inquiry typically focus in-depth relatively small sample, even single case can be selected purposefully. On this behalf, I selected four mathematics teachers, four mathematics educators, all together 8 persons were taken as the key respondents of my study.

I visited the selected area where I took consent from the head teachers and built good rapport with the informants. Then I conducted informal interview with my research participants. After that, I gradually observed classroom, took in- depth interview with teacher's and mathematics educators. I used general inductive approach to analyze the data. This approach informs me to make a framework of analysis of data in accordance with my research purposes. I made codes, categories to construct themes. I applied this strategy to analyze the data and made conclusions of the findings.

# 3. Findings and Discussions

## **Challenges Encountered in Implementing Inclusive Mathematics Classroom Practices**

In this section, I have articulated how the data collected and analysis. Information was collected through interview, informal communication, with teachers and mathematics educators during field visits. I have interviewed with teachers with the aim of exploring the challenges for implementing inclusive classroom practices. On the basis of information of my participants, I generated the following themes.

#### **Disengaged Curriculum**

In the mathematics curriculum of secondary level, we saw that there are only problem-solving based questions and there were not any problems for project work, group work and questions for creative thinking. That's why the students were not properly engaged in mathematics learning by

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doing through their own experience. Disengaged means students are not actively involved in all activities in the classroom. In this line, the first teacher respondent  $(T_1)$  of Shree Namuna Machhindra secondary school shared his view as,

Curriculum plays an important role for conducting the inclusive education in mathematics. The content incorporated in the curriculum of mathematics should be based on the basis of students' level of understanding and on the basis of need and interest of students' in the curriculum in this direction existing curriculum is less focusing. On the other hand, there is no extra curriculum for disabled students (such as blind) in Nepal. They must study curriculum which is studied by other who are physically and mentally fit. In this way the present curriculum fails to incorporate the need of the disabled students. Hence disengaged curriculum is also the main challenge for conducting inclusive classroom practices. The next teacher participant of Namuna Machhindra Secondary School T<sub>2</sub>.

Many curricula have emphasized memory rather than understanding so students are not engaged the subject matter and unable to make the sense of topic. Texts books are filled with facts that students are expected to memorized that the teacher told in the class.

From the above-mentioned views of the teachers, I came to know that existing curriculum may not focusing an active engagement of all students. Students are not actively participated in learning process. From the perspective of social constructivism, the curriculum should be based on students' interest where rote learning should be avoided and the curriculum should be a focus on collaborative and interactive learning. In this context, Hoskins (1995) clarifies that constructivism focus on the empowerment of the learner and provides them opportunities to reflect on their knowledge for all learners.

# **Non-Participatory Teaching/Learning Practice**

Participation means involving all learners in learning process. Participation makes students creative and active in learning process. Learning is an active process and can learns by collaboration conversation and participation with other. In this line, my teacher participant of Shree NamunaMachhindra Secondary School  $T_1$  shared his views as,

In the classroom, the talents students are involving in discussion, debate, collaboration but the weak and disadvantages group of students may not actively involve in learning process. They become passive as just like contents receiver students. It helps to become creative and gain the new knowledge but unfortunate, teachers have lack of ideas of participatory teaching learning strategies.

From the above data from the participant, I explored that some talent students involved in participation of classroom discussion but other weak or disadvantages group of students were not actively participating in learning process of mathematics. So, this non-participatory learning is one of the challenges for implementing inclusive pedagogy. In this context, NCF (2005) argues that teachers basically use textbooks alone as curriculum and deliver instruction as a routine task and instructional approaches used in the classroom are not interactive, participatory and meaningful to the learners. For making participation to the students in learning process, teacher promoting reading and discussion in classroom and the teaching—learning modality of teacher need to change and introduce the transformative pedagogy in the classroom teaching.

#### Follow Mono-Cultural Practices in Multicultural Mathematics Classroom

Nepal is the country of diversity from various perspectives such as cultural, social, ethnic, language, cognitive and so on. These diversities can be seen in our classroom. In this regard, one of my participant mathematics teacher  $T_3$  from Shamudhara School shared his view as

Nepalese classroom teaching is based on one size fits for all principle, which create injustice in the classroom. We as a mathematics teacher should foster their ability to learn mathematics in meaningful and constructivist ways by multiple methods and strategies. On the contrary, our pedagogies used by teacher neglecting the students' diversities. Teaching styles of the teachers follows by one-way traffic method which create the difficultly for marginalize, disadvantages and slow learning students. This situation creates the problems of implementing inclusive classroom practices in the school.

From the above data expressed by the participant, I concluded that teachers follow the monocultural practices in diverse nature of students. For this, it is not empowering marginalized and indigenous students in the classroom. Teacher should not capture students' interest and experience. For inclusive education, teacher should be encouraged to be respectful, well trained and qualified and there should be multilingual pedagogy.

# **Lack of Technology Integrated Pedagogy**

Integrating ICT in teaching learning process is pertinent issues in Nepal. ICT embedded instruction is an effective approach for better learning, critical thinking, creativity, collaboration and communication are key for 21st century skills, which our students can develops these skills such as the use of multimedia, power point, video, open the you-tube, upload and download the email. Moodle for better learning. So that students and teachers become ICT friendly and familiar with the knowledge internationally. But still ICT has not being properly addressed by the curriculum. In this regards my teacher participant T4 of Shamudhara Schoolshares his view as



ICT as a subject or as a tool of teaching-learning has not clearly defined. The existing school mathematics curriculum in Nepal has lack of clear direction for teaching and learning mathematics by using technology. Due to complexity through projectors, all students are engage in learning process and lack of this it is impossible to create an inclusive environment for all students to learn the subject matter.

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From the above information, I came to know that still the curriculum of mathematics is not clear about the use of ICT and many teachers are not the skilled to use the ICT in mathematics teaching. Due to this reason, there are problems encountered in practices for inclusive practices. In this regard, Karmacharya (2015) emphasizes, the use of ICT should be shifting from the use of ICT not just as stand- along technology but it is a tool for teaching and learning different subjects including mathematics in Nepal. Likewise, National curriculum framework for school education in Nepal (2007) has highlighted the importance of integrating technology in teaching and learning but still it is also issuing of lack of ICT in curriculum (CDC, 2007).

#### **Imbalance Between Theory and Practices**

Inclusive is providing equality and equity in terms of education, police and practices. To maintain good inclusive practices in the classroom addressing the diverse need of the students but in practices it lacks. In this line one of my research participant mathematics Teacher  $T_3$  shared his view as

Theoretically, teachers have some knowledge about child-friendly learning environment and child-centered and inclusive pedagogies but unfortunately, it is not being implemented well in the actual mathematics classroom. Principally, inclusive classroom welcomes all learners without any discrimination and a teacher who is teaching in inclusive classroom always respects learners' interests and demands. It also accepts that every student has their unique quality and character. A noticeable reality also can be observed in the classroom that is the big gap between theory and practice of inclusive education. Classroom practices are not being developed according to the demand of inclusiveness.

From the above saying of my research participant, I came to know that theoretically teachers were aware or well-known about inclusive practices but when they enter the actual classroom teaching they forget all and start conventional teacher center pedagogies.

#### Coping the Challenges for Promoting Inclusive Mathematics Classroom Practices

I have interviewed with teachers and mathematics educators and got different views how to cope the challenges for promoting inclusive classroom practices. The field data were linked with different theories and literatures to analyze and interpret. The basic themes emerged from the data is present below.

## **Engaging Students in the Classroom**

Engaging means students are actively participating in learning process. It may be engaging physically, socially and emotionally. Teachers need to try to make joyful classroom environment. In this regard, my participant mathematics educator E1 shares his view as

Teachers should not punish students but motivate and counsel them to learn mathematics in an enjoyable way. They also, give them work to use mathematics tool and explain its different aspects. In this way, students feel comfortable to learn mathematics and they tend to learn more from real materials such as prism, cylinder, cube, parallelogram, circular ring etc.

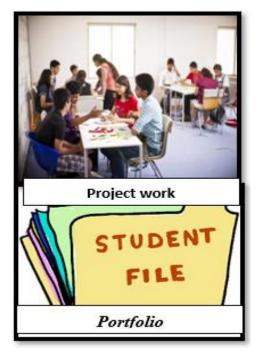


From above, view of my participants, I came to know that when students understand mathematics, they can enjoy it. Enjoyment comes after understanding of mathematics. I think that the curriculum of mathematics should be contextualized so that teachers can link it with students' real lives, which promotes meaningful understanding and students' happiness. The academic desire i.e. academic enjoyment and discouragement arise in social situation. Positive desire should be promoted so that all students involving in learning mathematics. In this context, Tomlinson (1999) states, in a healthy classroom, teacher is serious about learning, though it might be difficult to make all topics joyful. Sakiz, Pape and Hoy (2012) define intellectual enjoyment as a positive activating desire experienced when the engagement in a task is joyful, pleasant, and satisfying. In this line Ernest (1998) claims that learning is the social process and meaningful learning occurs when individuals are engaged in social activities. Generally, there are three approaches to engage students in learning that is composing the group, team building skills, and structuring group interaction. In other hand, Balkrishnan (2008) argues that mathematics must be contextualized in a way that will catch their attention, stir their emotions, come alive to them, and encourage them to engage in its problems.

#### **Shifting from Exams to Diversified Assessment**

In inclusive classroom we can make our assessment practices more flexible and change our evaluation system from one size fit for all principle to varieties of ways of assessing our students. Only the paper pencil test may not evaluate the overall development of students. In this regards, one of my Participant E<sub>3</sub> shared his views as,

Assessing the ability of all types of students in classroom learning is a challenging issue in itself. When evaluating the student, it may not only use paper pencil test we use varieties of tools for evaluation students work such as presentation, group discussion, project work, quiz and maintaining portfolio assessment. Project work is a series of activities that allows students to study, do research, and act by themselves using their abilities, interests, personnal experience and apptitudes. The project work progress under the guidance and monitoring of teacher. A portfolio includes student's class work, artistic pieces, photographs, and a variety of other media all demonstrating the concepts that students have mastered. Quiz helps student to get more general knowledge, students up – to – date with current knowledge, to increase memory ower of student, teachers to know intellectual power of their student.



From the above discussion of my participants, I came to conclude that there are various ways of evaluating the students' performance which help to development multiple intelligent and by using these tools we can evaluate students work and find the reality of student's performance. For this we could use quiz, project work, maintaining portfolio. In this regard,

Gardner and Hatch (1989) argued that addressing the multiple intelligences and potential of students can help instructors personalize their instruction and methods of assessment can be used varieties of ways of assessing the students' performance.

# **Group Work**

Group work promotes the feeling of cooperation. They have good opportunities to express their knowledge in their group so that students develop their performance. In this regard, my research participant mathematics educator  $E_3$  gave his view as



Teachers need to divide all students into small groups with good balance of gender, caste, age and capacity and then students ask to do project work in their classroom. Then there will be a good coordination within groups and among so that it became the good practices of inclusiveness in mathematics classroom.

Similarly, my other participant mathematics educator E4 also shares his view as,



It is not easy to care all students individually. Therefore, teachers need to divide all students into small group mixing at least one good student in each group. In each group team leader teaches his/ her friends. Different students are clever and good at different things. Also, the students learn more from their group work. Thus the group work helps to develop confidence in students and it encourages students to involve in the learning process and promote good inclusive practices in the classroom learning.

From above information, I concluded that the group work is suitable for large mathematics classroom with large number of students. All of my participants have a common view that the teachers need to divide students into small groups; each of which contains good and weak students and each student shares his/her idea with other members in the group. As Allen (2012) mentions the aim of group work is to gain and build knowledge together. Solving problems in groups usually involves each individual in the group work and students provide feedback to each other. Everyone must know what is to be done and come together to agree on the problems though good discussion while working on it. In a group work, students have more opportunities to express their thoughts and exhibits deeper mathematical concepts. During group work, students do not feel lonely and may feel less worried about practicing in mathematics learning.

#### **Using Technology Appropriately**

Technologies enriches learning through a combination of audio, video, image, text and animation and provides a platform that engages students in mathematics learning. In this regards my participant mathematics educator  $E_1$  claimed as,



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By applying the ICT in teaching mathematics helps to maintain the inclusive practices. It helps to learn new skill and keep up to date with the latest trends, increase self-confidence and enhance professional reputation.

From the above information, I came to know that use of appropriate ICT helps to promote inclusive practices in the mathematics classroom. ICT plays important role to make teaching and learning activities made more meaningful and inclusive for visualizing the all kinds of learners. In this context Lynda and wiest (2001) claims that computer base instruction prompts individualized learning. Effective use of good computer programs can allow students to work at their own pace and give their immediate positive feedback.

# Teaching Mathematics Linking with Students' Daily Life Context

The use of mathematics needs to focus for solving student daily needs. Generally, we say that mathematics is a practical subject. We connect mathematics with students' daily life activities. In this regard, my participant mathematics educator E1 shares his view as

Students enjoy a lot whenever teachers relate mathematical topics to their daily lives. I understand that mathematics should help to solve daily life problems of students. In the classroom, students raise many questions. For instance, by using a pen, I tell them that there is a certain distance called magnitude and straight direction. It is used to find the distance between two planets. I feel that students enjoy learning when real life examples are given to them. Such examples also help to make mathematics learning memorable also.

Similarly, the educator E2 shares his view as the connection between mathematics topics and students' daily life problem. He always gave them practical example. For instance, the teacher teaches the topic of Bills and Discounts, he use original bills and discussed about bills and discounts in classroom.

Similarly, teachers should relate mathematics with the cultures of students in which they perceive the notion of the subjects. If subject matter is related to students' daily lives and society, students may remember it for a long time. Therefore, teachers should value students' cultures. In acknowledging interaction between mathematics and human experience, we have to start to know how mathematics acts in society.

From above mentioned arguments, I articulated that, the mathematical practice in the classroom supports students to tackle with to solve the daily life problems. Students' performance has slightly improved due to real life examples. Unpacking my personal experience, I think, teachers have to link mathematics with students' daily lives. Students enjoy a lot whenever teachers teach mathematical concepts and relate mathematics with students' daily lives. Students easily understand the concepts. Mathematics should be visible, behavior and practical in the daily life. In this regard, Garri & Appova (2012) state that an application of culturally relevant pedagogy, teaching for social justice challenges teachers to build specific curriculum that supports students to understand their problems that occur in their communities. Likewise, mathematics creates our experience in the universe by communicating role of school mathematics and/or organizing our daily lives via a vast array of visible and hidden mathematical technologies (Falkenberg& Noyes, 2010). Likewise, Mezirow (1987) also claims that learning emphasizes contextual understanding,

critical reflection, and validation of meaning by assessing reasons. Our believes, values, and feelings depends on the context such as biographical, historical and cultural in which they are embedded. Ultimately, it will support the promoting inclusive practices in the mathematics classroom. For this we apply the work –based learning approach, action learning approach, action research and collaboratively approach.

# **Implementing Collaborative Learning**

Collaborative learning is the idea of learning in-group with peer for achieving an academic goal. It is a method where students work together in groups small enough so that everyone can participate in a collective task (Dillenbourg et al; 1996). Moreover, collaborative learning refers to an instructional method in which students at various performance levels work together in small groups toward the achievement of common goal. In small group, students can share strengths and develop their weaker skills. They develop their interpersonal skills. The collaborative classrooms stimulate both students and teachers. Johnson and Johnson (1989) note that the active exchange of ideas among the learners within small groups not only increases interest of students but also promotes critical thinking and to transformation in learning. The shared learning gives students the opportunity to engage in discussion, take responsibility for their own learning and thus becomes critical thinkers (Felner et. al; 2007). In my concern, for promoting inclusive classroom practices my participant mathematics educator E3 shares his view as,



Engaging students in collaborative learning helps students to learn mathematics without hesitation. Some child centered teaching methods have their own importance and considered as better teaching methods for meaningful understanding and empowerment of the learners in mathematics. It is a pedagogical approach involving joint intellectual effort by students, or students and teachers together.

From the above views of mathematics educators, I came to know that for engaging students follow child centered pedagogies, apply collaborative teaching approach then inclusive classroom practices became student friendly. The students are less engaged in mathematics due to the lack of collaboration and cooperative learning. The teaching learning activities are de/contextualized ignoring the culture of students (Acharya, 2015). In this line, Freire and Shor (1987) shares his view as education is a movement in which you seek to convince yourself for something and you try to convince others of something. The students and teachers will be under taking a transformation that includes the context outside the classroom. Therefore, collaborative method is one of the ways to overcome the challenges of teaching learning mathematics and ultimately good inclusive practices in the mathematics classroom. Similarly, Mezirow (1987) also claims that

the process of making meaning or learning involve a range of experiences in which knowledge is socially and collaboratively constructed.

# **Implementing Equity Pedagogy in the Mathematics Classroom**

Equity means conducting unequal treatment for equality. In this context, teacher gives an opportunity to all students according to their needs. It also refers to increasing the performance of low performers and socially, geographically backwards students. In this regards my participant T2 shares his view' as

Equity is something where all students have similar position in their classroom. I think each teacher should realize that he/she should not discriminate students according to their gender, caste etc. In my classroom, students from different gender, ethnic background and proficiency level are mixed in a group. Thus, the teachers need to be free from any kind of biasness. In my opinion this practice helps students to learn from each other. It also helps them to feel fairness in their classroom during class time.

The above argument shows that this practice tries to maintain social justice in learning mathematics and encourages students to be present at school regularly. This argument shows that it is necessary for improving capacity of all students in mathematics classroom. In this line, Planas and Civil (2009) claims for making good practices of social justice as "equal access to opportunities to participate in social construction of reality, and access to opportunities to improve the living conditions of individuals and groups.

# **Teaching Mathematics Through Dialogical Approaches**

Generally, dialogue means communication. Dialogue may between teacher- teacher, teachers – students, students – students, teachers – students and subject matters. It helps to become clear about subject matter and permanently of knowing knowledge. There is one saying in Hindi such as *Bade Bade Jayate tatwa Boda*. For promoting inclusive classroom practices one of my research participant E3 shares his view as

It is the best ways to learn mathematics through the dialogical matter. Dialogue helps to in learning to participate and responds appropriately and learning to take turns, share and give and take. By applying this approach, it makes confident, creative generating learning groups and developing friendship. Further in this approach, students solve the various problems and allowing another could to join in is a good way of encouraging friendship's and cooperation.

From the above view of my participant E3, I came to know that the good way to learn mathematics through dialogue. Dialogue helps the students involving to learning process. It equally shares their ideas and became problems solver. It is equally helping to make students confident, creative and ultimately, challenges the status quo and transformation occurs of the learners. In this line, Freire and Shor (1987) argues that it is impossible for a democratic educator is to permit aggression in students to go beyond some limits. It has the opportunities to imagination, guessing, intuition through the dialogue. It's something where my feelings challenge me in order to foresee. It's something that tells me there is something over there. Dialogue makes the students and teachers

creative became empower and transformative. For this we use inclusive pedagogies in the inmathematics teaching.

# Comprehensive Assessment System as a Means of Good Inclusive Practices

Comprehensive assessment policy has been developed with the purpose of addressing assessment related concerns that have emerged in recent years. In this regards, one of the mathematics educator E3 shares his view as,

If it is really implemented, it helps to produce the good manpower and become real evaluation in a nation but it is doubt in implementation part. Furthermore, it we can say that comprehensive assessment has not been focused appropriately our practices. For example, we can get multiple information from a single question through the comprehensive assessment then obviously it promotes inclusive practices.

From the above-mentioned data, it is clear that comprehensive assessment system evaluates the students differently. A comprehensive assessment system as comprising a range of measurement approaches used to provide a variety of evidence to support education decision-making. In such a system, multiple measures enhance the validity of inferences drawn from assessment. Formative assessment is a process used by teachers and students during instruction that provides feedback to adjust ongoing teaching and learning to improve students' achievement of intended instructional outcomes. To maintain this comprehensive assessment system is essential for quality education and promoting inclusive practices for evaluation of diverse learners.

#### 4. Conclusions

From the analysis and interpretation of data, I concluded that disengaged curriculum, nonparticipatory teaching/learning practice, lack less knowledge of multicultural competency in the among teachers, follow monoculture practices in multicultural mathematics classroom, lack of technology and lack of skills in using technology were the majors challenges for implementing inclusive mathematics classroom practices, so that it need to minimize the challenges. For promoting inclusive mathematics classroom practices, various possible ways were explored as through engaging students in the classroom, shifting from exams to diversified assessment, group work, use of technology appropriately, encouragement students to participate the learning process, using different strategies in teaching – learning mathematics in the classroom, teaching mathematics linking with students daily life context, implementing collaborative learning, implementing equity pedagogy in the mathematics classroom, teaching mathematics through dialogical approaches and applying comprehensive assessment system as a means of good inclusive practices classroom practices. So the challenges to for implementing inclusive mathematics classroom gradually need to be reduced and promot inclusive practices in mathematics classroom to enhance and encourage the active engagement of the students in the learning process.

# References

[1] Acharya, B.R. (2015). The study on inclusive mathematics classroom practices in schools of Arghakhanchi district. Mathematics education forum, 37 (I), 36-41.

- [2] Allen, K. C. (2012). Keys to Successful Group Work: Culture, Structure, Nurture. Mathematics Teacher, 106(4), 308-312.
- [3] Balkrishnan, C. (2008). Teaching Secondary school Mathematics through storytelling. Simon Fraser University, spring.
- [4] Best, J., & Kahn, J. (1999). Research in education (7thed.). New Delhi: Prentice-Hall.
- [5] Curriculum Development Center (CDC). (2007). National curriculum framework for school education in Nepal.Sanothimi, Bhaktapur Nepal: CDC.
- [6] Dillenbourg, P., Baker, M., Blaye, A., & O'Malley, C. (1996). The evolution of research on collaborative learning. In E. Spada& P. Reiman (Eds.), Learning in humans and machine: Towards an interdisciplinary learning science (pp.189-211). Oxford: Elsevier.
- [7] EFA (2002). Education for all: national plan of action. Kathmandu: Ministry of Education and Sports.
- [8] Ernest,P. (1998). Social constructivism as a philosophy of mathematics, Albany, New York: Suny press.
- [9] Falkenberg, T., & Noyes, A. (2010). Conditions for linking school mathematics and moral education: A case study. Teaching and Teacher Education, 26(4), 949-956.
- [10] Felner, R.; Seitsinger, A.; Brand, S.; Burns, A; & Bolton, N. (2007). "Creating small learning Communities: Lessons from the Project on High-Performing Learning Communities on 'What Works' in Creating Productive, Developmentally Enhancing, Learning Contexts." Educational Psychologist, 42(4), 209-221.
- [11] Flick, U. (2009). An introduction to qualitative research. India: Sage.
- [12] Freire, P. & Shor I. (1987). A pedagogy for liberation: Dialogue of transforming education. London: macmillan education Ltd.
- [13] Garri, B., & Appova, A. (2012). Crossing the great divide: Teacher candidates, mathematics and social justice. Teaching and teacher education, 34, 198-213.
- [14] Gardner, H. (2010). Multiple intelligences. Retrieved from http://www.howardgardner.com/MI/mi.html
- [15] Gardner, H. & Hatch, T. (1989). Multiple Intelligences go to School: Educational Implications of the Theory of Multiple Intelligences. Educational Researcher, 18(8), pp. 4-10. American Educational Research Association.
- [16] Hoskins, M. (1995). Constructivist approaches for caree counselors (Report No. EDO-CG-95-62). Washington, DC: Office of educational research and improvement.
- [17] Johnson, D.W., & Johnson, H. (1989). Leading the cooperative school. Edina, MN: Interaction Book Company.
- [18] Karmacharya, R. (2015). Integration of technology in Nepali classrooms: Lessons learned and future directions. Washington DC World Bank BBL.
- [19] Koul, L. (2009). Methodology of educational research (4thEd.). New Delhi: Vikash Publishing House Pvt. Ltd.
- [20] Lynda R. Wiest (2001). The Role of computers in mathematics teaching and learning, computers in the schools: Interdisciplinary Journal of Practice, Theory, and Applied Research, 17:1-2, 41-55, DOI: 10.1300/J025v17n01\_05.
- [21] Mezirow, J. (1997). Transformative learning: Theory to practices. New directions for adult and continuous education. San Francisco, CA: Jossey-Bass.
- [22] NCF (2005). National curriculum framework (pre-primary-12). Sanothimi, Baktapur: Author.
- [23] NCSNET, (1997). Quality education for all: Overcoming barriers to learning and development, report of the NCSNET, department of education. Needs in education and training (NCSNET) and National committee on education support services NCESS. Pretoria: Government Printers.
- [24] Planas, N., & Civil, M. (2009). Working with mathematics teachers and immigrant students: An empowerment perspective. Journal of Mathematics Teacher Education, 12, 391–409.

[25] Sagoe. D. (2012). Precincts and prospects in the use of focus group in social and behavioral science research. The qualitative report, 17 (290, 1-16. Retrived from: htt: // www.nova.edu/sss/QR17/sagoe.pdf.

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