The Language difference in the learning Difficulties in mathematics for ethnic student:

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Abstract:

The aim of the study was to identify the major language difficulties in mathematics of the student in secondary level of mathematics classroom and relation between language and learning mathematics. The findings of the study indicate that the student's language difficulties in two categories the first one are semantic difficulties. These difficulties include that student suffering mathematics due to the specific terms. The terms having different meaning in other description, in the theorem properties, and the use of notation. Another difficulty is syntactic difficulty; this difficulty is the use of language. Mathematics need to be explained with the help of language every language has its specific formal structure and patted which is called the syntax of language.

The study concluded that the ethnic students have great discontinuity between their everyday life and school activities as they get practical knowledge in home and theoretical knowledge at school.

This research tries to find out the problem faced by the ethnic student in learning mathematics to be making co-operative class environment and to be serious thought while making decision about curriculum and teaching learning process.

Key-words: Ethnic, Semantic, Syntactic, Cultural Difference.

Introductions:

Education is the process of development from infancy to maturity. It includes the effect of everything which influences human personality. The communities' line in the present will guide the activities of the future. Therefore, the education is continuous reorganization and integration of activities and experiences. Thus, the education brings changes in the behavior and its main function is to remain more transmission of enrichment of culture and it will fall short of its role in dynamic society. Education must also provide situation at all age levels but within the maturity and ability of the individuals to stimulate a creativeness of mind it can explore new horizons and bring the vision of the future in to the living reality.

Education is a dynamic force in the life of individual influencing his physical, mental, emotional, social and ethical development. According to the definition formulated by a group of expert for the Dictionary of Education, education is "the aggregate of all the process by which a person develops ability, attitudes and other form of behavior of practical value in the society in

which he lives" the social processes by which people are subjected to the influence of a selected and controlled environment, so they obtained the social competence and optimum individual development. This implies that education as a product is the result of interacting forces including individual insight, intellect, interest and experience as these are utilized through educational procedure towards the modification of individual purpose, knowledge, habit attitudes and ethnical understanding.

Any organized system of Education must meet the real situation of community. It must be in accordance with the physical and social needs of the community. The intrinsic needs and activities of the child are closely related to the need of community. A child is not to be educated in vacuum. He is a member of the community in which he lives and education must help him to become a useful member of the society. Therefore, education is a constructive agency for improving our society and nation Aryal (1970) has stated "Education is the greatest force for building up a country economically, socially and culturally". The challenges have to be accepted by educationists who are the real builder of a nation unless education is properly planned and organized. It is not possible for the social welfare for all.

On the other hand, mathematics has a closely and friendly relation with every phase of human life. Mathematics helps individual understand and interpret qualitative and quantitative aspects of concept and natural phenomenon. Mathematic has been developed for fulfilling the daily life problem of man like Country, Calculating and remembering. Now days, Mathematics has an important role for the development of science and technology. Mathematics has abstract term, symbols, postulate, theorems and axioms. Its basic elements are logic, intuition analysis construction and generality. Mathematics is one of the important subjects in school education. In all major (normal life and official work) and minor (household works) activities of life such as selling purchasing in market, arranging party, joining profession, celebrating marriage, etc. Mathematical considerations are uppermost in a human mind. In the study of history, political science, geography, economic, commerce etc. mathematical concepts are applied. It is not so easy to say when and from where mathematics has started but once can see that mathematics as an essential part of human civilization from the time of immemorial. It is created to fulfill the daily need of human life and thus the nature and the structure of mathematics was built with development of human civilizations. Roman, Greek, Arabian and Hindu and all civilizations, great mathematicians like Pythagoras, Euclid, Plato, Archimedes, Ptolemy, Pappas, Newton and Gauss contributed for the development of mathematics likewise the ancient civilization like Babylonian, Egyptian etc. contributed for its development.

Learning is derived from the American word 'learn' which means to gain knowledge, comprehension and mastery through experience on the study. It is the basic human behavior. The main aim of learning is to change the behavior of learner. It plays the vital role to develop the innate power of learner. According to the Skinner "learning is a process of the progressive behavior adaptation". In the word of Wood Worth "the process of acquiring new knowledge and new responses is the process of learning" learning is the modification of behavior through

experience and training. It needs maturity of a person. It is acquisition of knowledge, acquisition of habit and attitudes. Thus, the learning as permanent changes in behavior and depends in practice and observed. It is the life long process. It is the product of environment discovery and continuous process and it last until the death of learner.

Now learning is affected by the cultural phenomenon. The different ethnic groups have their own culture that curses the difficulty in learning.

In our educational institution many children from different culture background come to acquire education. A major goal of multicultural education as students from diverse racial ethnic and social class group will experience educational equality.

Cultural generally refers to patterns of human activity and symbolic structure. There are many different definitions of cultural and each one of them reflects a different theoretical basis for understanding or criteria for evaluating human activity. The culture term includes technology, art, science as well as moral system and the characteristics habits of the selected intelligent (Acharya 2013 Studies in Mathematics education (p-92)).

Mathematics is now considered as social criteria. Culture is the contributing factor for the development of mathematics. The understanding of the term culture is broader than we generally perceived "culture refers to the fabric of idea, ideals, belief, skills, tools objects, method of thinking, traditions". Mathematics plays an important role in the achievement of culture and civilization. So, development of the culture and the mathematics contributes each other for this advancement (Ranjeet, 2006, p-41).

The culture difference between home and school can influence children's learning. There are so many castes in society; they have difference culture perspective and individual differences. The student who has been participated in classroom, they have not same language, culture, religion and belief. Due to this diverse, the achievement student seems different. Generally, teaching language of Nepalese school is in Nepali and English, but those students who have own martial language, it was the problem to know them. They cannot understand properly, what is taught in class, therefore language is one of the major problems in learning mathematics.

This was not a broad study; there was not a lot human resource for the study. This study was conducted as a case study approach. This study was concerned about the difficulties of language diverse student in learning mathematics of grade 8.9 students. However, in Nepal no substantial study has been done yet in the area of mathematics. So, this research tried to investigate the difficulties learning faced by the language difference school student while adopting their learning mathematics. With reference to this context, it would be worthwhile to study the problem of language difference student in this subject to explore difficulty. It finding would be useful to improve the achievement of mathematics of the student. It would provide the appropriate information about the difficulty of such students and help to give proper treatment to them in teaching learning process in mathematics, implementation of curriculum,

types of modification made in present educational policy, in integrating class of student, concentrate the governments sight over the gap of culture of ethnic student manage their education and also open the door further research in the area of learning problems of language diverse students.

Literature review:

The effects of culture diverse need to empower school culture are essential building block for enacting relevant teaching practices for learning. In the socio-cultural present and culturally relevant ethnically, teaching is the basic needs to teaching learning activities. Teaching materials helps learning to wake efficient use of the resources in order to facilitate self-discovery (Tolmn 1993) said that teaching learning materials and aids includes any materials program or machine that can be used to help teacher present or explain his/her lesson better.

According to the Laurentian (2002) the difficulties of learning mathematics can be summarized in such a way that (i) incomplete knowledge of number facts (ii) computational weakness such as making errors by misread of sign or cry numbers incorrectly or may not incompletely understanding of the language of mathematics.

Ogbu (2000) delineates about the cultural difference, cultural discontinuity theory, that deals with the problems in children's learning caused by the difference and discontinuity between the cultural of home and school. Those children whose homes cultural are much similar to the culture of school can cope easily with the system that may result better learning achievement. Similarly, the children with unmatched or dissimilar at home culture with school cultures and they do not have enough attention in their learning and do not get much recognition of their cultures and they have to work achieving learning outcomes compared to the children with good matched.

Language Diversity:

Language proficiency and mathematics proficiency appear to be linked, such that lower language proficiency trends to translate in to poor mathematics performance (cocking and Mestre 1988). This is not only paints to the role of literacy learning other content areas, but it also has important implication for constructing, selecting and teaching mathematical word problem. An article by Haynes started different challenges for English language learning student in context area learning. Some of the students may not have experience with measurement system. In the same way, some of the students may face difficulty due to manipulate also because they can be unique as well as uninteresting for them (Tolman 1993).

Relation between language and learning Mathematics:

Salvin(1987) (cited in Andersen, 2009) reviewed so different studies that compare the achievement of the student taught in cooperative learning classroom to the achievement of student taught in traditionally organized classroom. He reported that 89% of the student in 50 is different studies earned higher scores on achievement test when they had participated in cooperative learning. Cooperative learning helps to improve racial reaction in schools.

Adhikari (2006) carried out the study entitled "culture discontinuity and learning difficulties in mathematic". In his study: the student who have same culture at home and school, they also felt mathematics as difficult subject. In case of Dalit students learning mathematics is challenging and more difficulty process. On the basis of overall study and information provided by students that they do not have same culture in home and school, there is discontinuity between home culture and school culture. There is discontinuity between traditional measurement and modern measurement system. These gaps create influencing factors in learning mathematics such as interpersonal relation is not better using vocabulary is not standard. There is discriminating behavior between son and daughter.

Niure (2014) carried out a study entitled "indigenous knowledge of Tharu's related to education practices implication in formal schooling". His aim was to study the teaching learning strategies of Tharu and their implication in formal schooling. He raised the research question; what are the knowledge Tharu have been using for a long time to run their life successfully?

Tharu had their own teaching learning strategies that were used from generation. They generally used storytelling, demonstration. Questions, discussion and deductive method by considering children's level, nature of content to teach diverse indigenous knowledge, skills and values voted difference knowledge skills and values from real life performance with their active involvement.

Majhi (2012) carried out a research on a study of ethnos mathematical concept practiced by their community in Morang district. He started this research with the objectives to identify ethnographic mathematical concept used to construct artifacts in Tharu community.

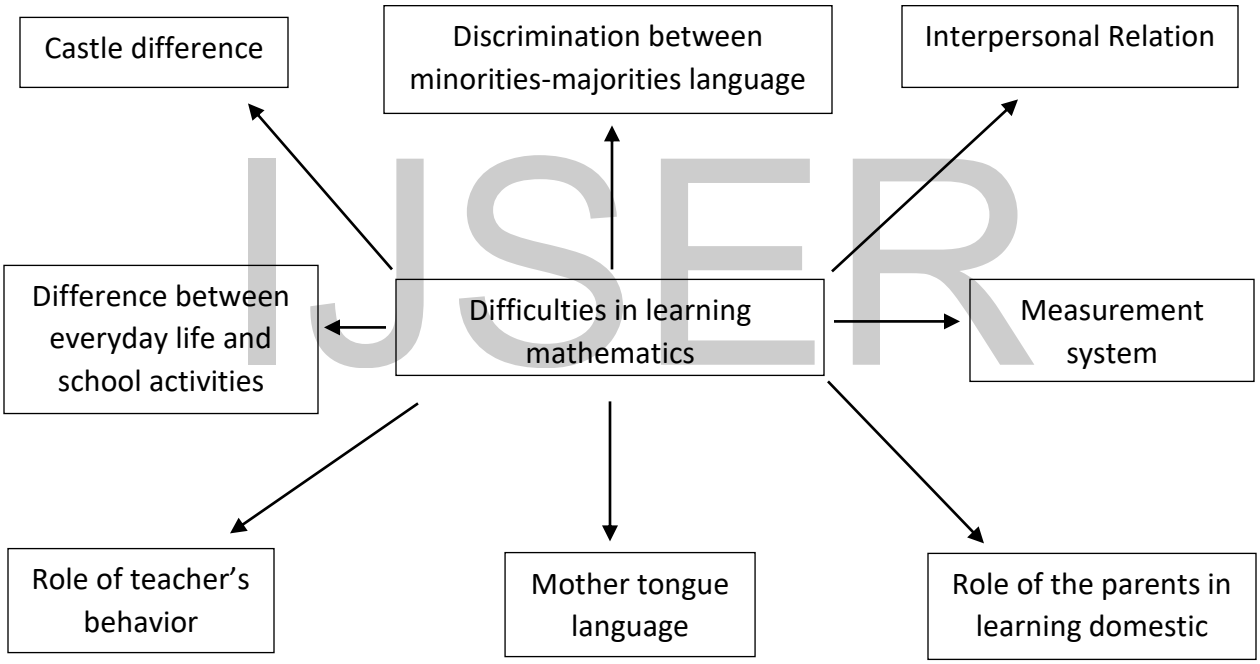
Varuhese (2009) entitled in his thesis "language difficulties in mathematics courses for student from non-English speaking backgrounds in the transition from secondary to tertiary Education " presented some language difficulties in mathematics course. This research investigated the role of language in tertiary mathematics and the difficulties faced by second language learners in facing with the specialized vocabulary and discourse features of mathematics. A mixed method interpretive case study methodology was use to prove two components of language, that are of importance in learning tertiary mathematics namely reading and writing as a result of collected findings from three parts. This study has identified several language difficulties experienced by tertiary non-English speaking background student

of mathematics and the effect of language background on the nature and level of difficulty expedited. Some of the language difficulties presented in the study are: (i) mathematical vocabulary words such as sum, product, isosceles, quadrilateral, numerator or denominator, parallel or perpendicular and reciprocal clearly posed difficulties for many students (ii) it was seen that the student had vast difficulty in producing a written description of a composter geometric figure (iii) a significant difference across language groups was observed through the study.

Conceptual frame work

This research tries to identify difficulties in learning mathematics of language diverse student at secondary level 8, 9. The following frame work in difficulties in learning mathematics is purposed for this research.

Fig: Conceptual Frame work of Difficulties in learning mathematics



This conceptual framework described about the language difference children that there was great discontinuity between their everyday lives and school activities as they get practical knowledge in home and theoretical knowledge at school. The castle difference, role of parents is in learning in domestic work. Interpretational relation role of teacher's behavior in learning mathematics misunderstanding between mother tongue, lack of concept about modern measurement played vital role in learning mathematics.

Methodology:

The researcher's study was related to learning difficulty in mathematics of language difference school student. The site selection was also a very important task for the work to find the appropriate information related to 'Limbu' community in school because the researchers need Limbu student who are studying the school at 8, 9 grades. Obtaining easy access, establishing immediate report with information and gathering data directly related to research where the main criteria for selecting setting.

As the Limbu tribes mainly spread in the eastern parts of Nepal like Morang, Sunsari, Bhojpur, Vdyapur, Dhankuta, Terhathum, Illam, Panchathar, Taplejung etc. districts of Nepal. The researcher has selected the Dhankuta district for their study. Limbu's are residing different parts of the Dhankuta district. The researcher has chosen a Shree Bhanu secondary School, Dada Bazar, Dhankutadistrict as a convincing reason for selecting the school. The school has the classes from one to ten and including 75% Limbu students are enrolled.

This was qualitative research, so the researcher has taken 22 Limbu students among 30 students and the researcher selected only four Limbu student whose were low achiever of grade eight in final Examination in mathematics who gave appropriate and actual information.

As one of the non-probability sampling, the researcher used purposive sampling to select the relevant information that could be done with a specific purpose in mind and their relevance to the topic. Researcher informed them that after observing their class work and homework the researcher would find the cause of difficulties on the mathematics and researcher would discuss/interview certain questions related to their difficulty on learning mathematics and personal background thus the researcher studied of those selected Limbu students about 2 times (1st term, 2nd term) examination time in the school. In this time the researcher observed them carefully how they learned and what they felt difficulty on learning mathematics. For this study purpose, the researcher prepared the individual student record of all students studying at grade Eight and analyzed those files based on the criteria.

The researcher has got the information during the research through using the tools, observation, interviews, field's notes and the key children diary, the rationale behind the discussion of different cast is to find out their ways/difficulties of learning mathematics. The research has adopted the case study of four Limbu student, in-depth interviewed and participants as well as non-participants observation to get the data for the research study.

The researcher here carried out written test and observation as well as open ended interview to clear their difficulty regarding the study. The researcher carefully voted the focused student's regular attendance; participation in extra activities and other behavior were noted by reviewing the school files and records.

The key children diary includes the name, address, parents' occupation, his school attendance participation etc. it helped in finding of student's status on classroom learning.

When the researcher researches in the school he uses key children diary in data collection process.

A Field note includes the huge or thick data obtained by using the interview schedule, observation format. It used in analysis of data. When analyze data the collected data was categorized according to the category of the respondent. The categories were: students, mathematics teacher and parents of the students.

Analysis and Interpretation:

It is totally the description of the four-key student as what and how they act, react and interact in order to understand their learning and notice their learning in mathematics in the school. The researcher arranged the information and analysis by using the cultural discontinuity theory what difficulties on learning mathematics of language diverse in mathematics classroom. The detail of analysis of the data collected is get actual conclusion of the research as well expressed below:

1. Difficulties in learning mathematics of language diverse classroom

Whether the mathematics is learned and taught in a situation of language diversity, student expressed their difficulties in different way. Some important parts of the student were gathered their major difficulties are as follows:

I. **Vocabulary Difficulties**:

During the interaction interview, students have shown the vocabulary matter in mathematics classroom as their difficulties. Mathematical terms and vocabularies that have special meaning were expended by the student as are of their difficulties in the classroom. In the interview, students were asked the vocabulary problem they face during the class time, most of the students answered as they do not understand the context taught due to some specific terms or words. Mathematics is difficult lies in the form of verb as well. Some time we can see the use of complex form of verbs in the book as well as the question papers as well in such case: students have to suffer to know the actual meaning of the sentences. Use of the prepositions creates difficulties to the students. Prepositions such as in, on, into, with, before, after, etc. plays important role of the student.

Language problem faced by mathematics learn in school level of mathematics classroom were studied through this study. Different short of difficulties were appeared and they were seen mainly in the major areas. First it was difficult due to the mathematics language. The words with different meaning in other discipline create difficulties due to the possible variation of meaning. In the same war in the addition of geometry terms and expression, student face difficulties and they make more solution. Not only that they cannot do properties of triangle. It is because they do not know the actual meaning of those term and statements. In such problem is feeling difficult due to the use of right symbol, triangle properties and with the proof of theorem. On the other hand, mathematics learns feel difficult due to the formal structure of language. Through the study it was found that the use of so many words in a single word problem was difficult to solve to the students. Similarly, passive

voice and the meaning of complex verb such as have been, had been was another type of difficulty to the students. In the same way use of too many pronouns he, she, their, them etc. and relative pronouns (that, who, whom which etc.) had been seen as another difficulty to the students in their mathematical word problem. Who use the comparative construction makes the students unable to understand the meaning of question? So, the use of comparative construction makes the mathematical word problems difficulties to the students.

II. Obstacles in teaching Multilanguage classroom

The teacher's ability and skills for classroom management has great importance in the multiethnic classroom problem in languages, gender, culture sitting adjustment cultural beliefs and perception. Racial discrimination, class struggle among student are some of the issues that should be taken under co-duration inside a culturally diverse classroom. Respecting and addressing of cultural issues in education is to provide equal opportunity to the students from various cultural groups. If the language that is spoken in mathematical class is ambiguous and different that the language of the students, the exact idea of the subject matter cannot be the cross-cultural communications and the multicultural values are very essential. Therefore, it is essential to design the class room pedagogy to address the problem of the students from multi-mother tongue background in a question regarding the obstacles on teaching mathematics in multi-cultural classroom.

III. Relation between language and learning mathematics in classroom:

The notion of mathematical learning and understanding, in value student's construction, deconstruction and reconstruction of their knowing through the proven of language participation, social interaction and reconstruction of their local activities of the community. In this sense, mathematics is the study of patterns and relationship was learning by doing (Cob and Yakul 1996).

Construction of knowledge is inherently cultural experimental their researcher has discussed about languages background and mathematics learning of key students which supports to explore the relationship languages and learning mathematics. Hence, by the relative discussion and observation indicates that there were no sufficient changes to teach students themselves. The teacher has belief that students can learn from forced exposition and adequate drill and practice. Mostly teacher is using lecture method for teaching mathematics. Teaching materials are not used which helps students to understanding the contact knowledge. From above relatives, mathematics has mutual relation. Learning mathematics has affected by different language factor i.e. home environment, school environment, family socio-economic status, discrimination in home and school, language etc. However, language and learning mathematics has inter-relationship.

Mathematics was for a long time regarded as a neutral and language free discipline removed from social values. It was always taught in school as a language free subject that involved learning support universally accepted facts concepts and contents. This means that western academic mathematics consists of a body of knowledge of facts algorithms, axioms and

theorem. In this regard, Rara and Orey (2006) as citied in Rara and Orey (2001) argued that mathematics program was developed to confront that mathematics is a field of study that is a universally and accentual. This mathematic approach is presented as a language response to students needs by making connection between their language backgrounds and mathematics. This approach supports the views that mathematics is concerned as a language product which has developed as a result of various activities. The objectives of this perspective are to students become every language is assumed to have mathematical response with valid contacts for a mathematical class room. So, all of above relatives and views shows that language and learning mathematics has strong connection. Most of the language factors have shown as causes of difficulties in learning mathematics. So, it is clear that mathematics creates language and learning mathematics.

IV. Cooperative learning in mathematics with relation between language and learning mathematics

Salvin (1987) as cited in Andemenn (2009) reviewed so different studies that compared the achievement of the student taught in cooperative learning classroom to the achievement of student taught in traditionally organized classroom. He reported that 89% of students 50 is different studies earned higher scores on achievement tests when they had participated in cooperative learning. Cooperative learning helps to improve racial reaction in school.

In the action research Andemen (2009) investigated the impact of cooperative learning on the engagement, participation and studies of her students. She also investigated the impact of cooperative learning upon her own teaching. She discovered that her students not only preferred to learn in cooperative groups but that their levels of engagement and participation their attitude towards mathematics and their quality of work all improved greatly. Ukpokodu (2011) noted that all the text he read suggested that minority students are more responsive to learning context with communal learning be a dimension of culturally responsive mathematics teaching. He also suggested that culturally responsive instructional strategies begin with the teacher setting high expectation and caring enough about them to challenges them to the highest land. This is so important for urban and low-income students who have been told directly and indirectly that they are incapable of learning hand subject like mathematics.

From the case study of the language diverse students, the researcher concluded that mathematical communication can play an important role in learning in mathematics. Exchange of knowledge one another is the basis of cooperative learning in mathematics. Cooperative learning strategies is the effective culturally response pedagogy in mathematics. When a student communicates mathematically, students enhance their understanding of mathematics. Also, it is clear that the classroom teaching is not effective in fact becomes a while their teacher is not able to address the multi-cultural and multilingual students. In the base of this fact, the problem also lies in the teacher's capacity to address the students from diverse lingual and cultural background.

V. Students Encouragement and motivation in multi-language classroom

Motivation directs controls and clarifies the human behavior. Some students seem naturally enthusiastic about learning, nut any need or expect their teachers to inspire challenges and stimulate them.

Encouraging the student is one of the effective processes to make their standard better and to encourage exposure. Children need to be encouraged to recognize and acknowledge their feeling both negative and positive. Reinforcement can spend up and better their further performance. The research focuses on the constructive guidelines to the students in the classroom for improvement that helps students learning as well as developing positive attitude and belief motivation is also one part of reinforcement. It helps to develop by reinforcement of that is positive reinforcement. It is equally harmed if that is negative reinforcement.

Students are encouraged to help and share their problem. They are encouraged to as their problems and discuss among them. The researcher believed that poor group discussion and the cooperation between students can make them understand better and enhances effective classroom practice. The teachers let student's discussion and ask for difficulties among themselves. Mathematics itself is not a boring subject. Interest of students and teaching a way of teacher makes it really relaxing and productive in the classroom and also suggested that the method of teacher is also reinforcement for the learning mathematics in language diverse classroom. Hence behave equally to all students so they want to read and take teacher positively and to encourage students by praising their works. Reward should be given and teaching in group is another way of reinforcement.

According to Middleton, J. Teacher’s own motivation often plays or pivotal role in activities they choose and fostering motivation depends on the extent to which teacher's motivation matches that of students for participating for clean activities. Middleton describes how teachers can be learning to understand the student's motivation in to the goals of classroom works. Teacher can begin integrating motivation in to their lessons by talking to individual students about their goals in mathematics (Sharma G 2015 p.119)

Findings:

From the above-mentioned literature method and analysis of the collected data by field observation, information and interviews the major finding are explained in different heading as follows:

i. Difficulties in learning mathematics of languages diverse classroom:

The difficulties are found caused by language diverse classroom in learning mathematics are as follows:

- The vocabulary related with mathematical term with the difficulties in learning mathematics.

- Not being able to understand and use the meaning of mathematical operation while solving.
- Due to language diversity students are felt uneasy in programming the mathematical term.
- Unable to understand the short form used in mathematical problem solving.
- Difficulties in teaching in multi-language classroom.

ii. **Relation languages and learning mathematics**:

It is found that the mathematics and languages are highly related with each other. Language is the medium of communication. And mathematics is related with the solution of every problem which is not possible without having communication with people. It is also found that language has great impact in understanding the concept of mathematics.

Conclusion:

Language diversity in mathematics education in mainly used expansion to discuss question around why student from different culture, ethnic, social-economic and linguist groups perform differently in their school mathematics. Mathematics language is a basic tool of communication. Daily communication invokes the frequent use of mathematical concept and skills so for understanding of every discipline, mathematics is essential. There are different causes of difficult in learning mathematics of language diverse student at classroom. In this study, the researcher found vocabulary, misuses of the word problem, syntax of mathematics obstacles and difficulties in teaching in multi-language classroom, gender diversity in languages.

Language and learning mathematics are mutually related and cooperative learning is most effective approach in teaching mathematics in languages diverse classroom.

The study entitles "Learning Difficulties of student in language Diverse Classroom" has some educational implications are as follow:

i. It is concentrated to identify difficulties in learning mathematics of language diverse student at classroom.
ii. It explores the relation between language and learning mathematics.
iii. It is helpful for teacher, students, researchers, institutions, educationist and policy makers.
iv. It has enhanced cooperative learning in teaching mathematics and promote the students centered approach in classroom.
v. It helps equality and equity for the development of inclusive mathematic classroom.

Recommendation:

According to the finding and conclusion providing by the study, the recommendations for further study can be presented as:

- A similar study can be done for secondary level and another subject.
- School may be applied practical knowledge-based activities which can promote their previous experiences.
- This study is done with limitation and particular area. The broad and general study may be done for overall Limbu community.
- Teacher may be played a vital role in bridging the gap between the interpersonal relation among them and the Limbu student. They may create an environment to understand their feelings and behaviors.

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