Improving Myanmar Ethnic Minority Students' Perception on Science & Mathematics Teaching in Higher Education Vocational Institutions in Cities

1.0 CONTEXT OF STUDY

1.01 BACKGROUND

There are about 1000 ethnic minority students from border areas such as Eastern Shan State, and Northern Kachin State who are studying at Government Teachical Colleges in Myanmar. They are Wa and Lahu who are ethnic minority in Myanmar.   Majority of them are schooling in Yangon and Mandalay .Except a few numbers of ethnic minority students who were born among ethnic majority, most of them came to cities after peace accord signed between their ethnic community leaders and leader of Myanmar army.

The ethnic minority students who came to cities faced with the learning environment of transition from their culture to the culture of ethnic majority people living in cities. Thus they have to cope with the different culture and different context of educational and social system in cities. The ethnic minority students who left their birth places, the least developed areas , to attend the higher education institutions in cities face the challenging task to cope with city life as well as requirement to try harder to have appropriate prior knowledge which is the background for their study. As education is important for their prospective in life and their understanding and willingness to maintain the unity and harmony between them and ethnic majority people, the task to set up good classroom climate and teaching strategy that improve the educational objectives are important in educating them. I propose the study on ethnic minority students' perception on the classrooms and their teachers and find the teaching strategy to achieve good classroom climate.

The main objective of my project is to assess the classroom environment of the classes mostly attended by ethnic minority students and that of the classes being taught by the teachers who are mostly Bama , a major ethnic group in Myanmar and to assess the student- teacher relationship in vocational classes being attended by ethnic minority The study is to be made on the impact caused by the changing of their learning environment during the transition period from schooling in their birth place of border regions to schooling in capital cities which are culturally different for them.The study is performed for ethnic minority students who recently arrive in cities and are attending the career development and vocational classes in Myanmar capital cities.

In the multi ethnic classroom where they attend , the way to set the lesson appropriate to their capability level influence on their behaviors. As the students move from least developed rural areas to higher education institutions without passing through the bridging training for enabling them to get academic foundation required for higher education classes , some of them did not acquire appropriate background of study and previous knowledge on which the next level of study and teaching is to be based.

Such students will not be interested in the lessons and they tend to misbehave in the classroom. Thus my interest is how to do the research work on their level of knowledge and how to prepare the teaching style and level of knowledge that are relevant to their diverse backgrounds and that motivates their learning so the misbehavior problems can be reduced.

As there are limitation in the aspect of time and staffing, each student can not get an individualized tutor. the study is to be conducted on how it can improve their behavior in the classroom.

Behavior management becomes important issue in Myanmar schools . Especially in multi ethnic claseses class, the ethnic minority students who can not face the level of difficulty and challenge

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created by lesson taught by ethnic majority teachers while the other ethnic majority students can do well will possess misunderstanding on teachers and education system and such is not a good thing for their attitude in the future.. For a mathematics and science teacher who teach multi ethnic classroom , as mathematics requires the strategies to develop students' understanding, the instability caused by misbehaved students will disturb the class and all learning environment can be destroyed. To provide effective and quality education to the students, behavior management is an important issue to me. Furthermore, the finding obtained from the research to resolve the matter of how preparation of appropriate lesson can improve the behavior of students is my interest.

1.02 SIGNIFICANCE

A Science and Mathematics teacher who teach multi ethnic classroom possesses the responsibility which is not only to educate them but also to set the basis for harmony and unity between ethnic majority students and ethnic minority students . Performing the research to investigate the backgrounds of students and to set appropriate level of lessons that gives them to have interest and that assist them to improve their behavior is a significant task for multi ethnic education.

Behavior management is also a great concern in the school as it is the most difficult and challenging task in the school. As there are significant numbers of students possess poor academic background which is lower than that of the standard in which they are attending, how to have students' behavior good and how the appropriate planning of lesson can significantly improve their performance and behavior are also important and significant issues.

The topic that I select to do the educational research is how appropriate teaching method and curricula can improve the ethnic minority students' behavior in the transition period of changing from rural classrooms in their birth place to higher education schooling at colleges in cities area where they are ethnic minority.

1.03 OBJECTIVE

As my objective to do the research is to investigate the behavior of the students and effectiveness of teaching strategies to improve their behavior, action research method is to be applied. Action research is a powerful form of professional development. The focus of inquiry and interest in action is my own practice in students' learning environment, behaviorism and assessing the effectiveness of my application of teaching strategies.

From the finding, I believe that the appropriate strategies can be initiated and developed to provide the most efficient and effective education to them to overcome the difficulties caused by the effect of the different culture in ethnic majority in cities.

1.04 Social impacts related to changing of cultural environment.

Most of the ethnic minority students were children soldiers who served in MTA (Mong Tai Army), UWSA (United Wa State Army) and SURA (Shan Union Army).They were recruited in the ethnic armies in north eastern and eastern Shan state which now signed the peace accord with Myanmar Government. As they were born and grown in the battle place and least developed areas, their past experience was greatly influenced by the rural life and their cultural system. On emigrating from their native place they leave the individual niche which he or she fills in a particular society. This niche is a product of own culture, extended family relationship, and their proficiency to cope with the daily living matter which they use to in

their community. When they arrive in Myanmar capital cities, these all lost their relevance at least to some extent. They become minority. They face the language difficulty as well as general living and cultural differences.

The ethnic minority people who arrive in Myanmar capital cities will also have to overcome the difficulties, anxieties, feeling of helplessness and there will be urgent needs to make the decision to get the education and training for employment (or) for continuation of schooling as well as social assistance guides for them to settle in majority ethnic community in cities.

My objective of the project is to assess their learning environment in cities so that the way to promote their learning and schooling as ethnic minority in cities can be determined to reduce and reverse their hardships caused by cultural shock and loss of self-esteem as well as to establish the good relationship with the teachers and classmates from the other cultures in cities.

My study involves (1) Brief Description of Eastern Shan state where they lived (2) The education system and the situation of schooling in Eastern Shan state (3)The difference between the schooling environments in Eastern Shan state and in Myanmar capital cities. (4) Study on ethnic minority students' personal perception in school environment in Myanmar capital cities (5)How teacher's understanding of the cultural difference can improve the classroom environment (6)Selection of appropriate instrument to assess their perception and classroom environment of the classes being attended by them (7)How the data are obtained from the target source involving ethnic minority students who are attending tertiary/vocational classes (8) Strategies on collection of datas by applying quantitative and qualitative methods for change in learning environment during the transition from rural schooling to schooling in cities (9) Multi level data analysis on personalization, involvement, cohesiveness, satisfaction, task orientation, innovation, individualization, ,friction, competition, personal relevance, uncertainty, multi theoretical perspective in learning teacher support,student learning.(10)How significance occur after interaction, assessing and improving the classroom environment,(11)how teacher student relationship is improved ,(12)how ethnic minority students are impacted by changing of classroom environment when they moved from classroom in their birth place to that in Myanmar capital cities.(13)How significance can occur after providing the classroom environment preferred by Non Burmese Speaking Background students,(14)How interpersonal teacher behavior of ethnic majority Bama teachers is an important factor related to ethnic minority students' perception outcome and attitude outcome, ethnic minority students' perception on learning environment of classes,teacher's expectation and attitude toward individual student and individual student's perception on learning environment,(15)How student's perception is different on the teacher who has better understanding on the cultural difference and the teacher who has poor understanding on the cultural difference and (16)How change in learning environment in transition from their birth place to Myanmar capital cities.

1.0.4.1 Brief Description of Eastern Shan state

From the book " Why Khun Sa bargained the peace with weapon written by Maung Pho Shoke, it is learnt about the Eastern Shan state (Eastern side of Thanlwin river) that Loi Lan, Loi Tone, Mong Tot, Mong Hta and Homain regions were controlled by Mong Tai Army led by U Khun Sa. Loi Maw people milita led by U Khun Sa went to underground in 1964. He communicated to Bu[Page]rmese Government in 1966 and fought the remaining troops of KMT Chinese who invaded

Burma when they were toppled by Chinese Communists in 1949. U Khun Sa cooperated with Burmese Government till 1968 but he fought against Burmese Government from 1969.In 1985, the group led by U Khun Sa merged with the group led by Moe Hein and founded United Shan State Patriotic Council, United Tai Liberation Army and Mong Tai Army. Mong Tai Army with 15000 troops armed with modern weapons was natorious for producing and traffickering heroin and their leader U Khun Sa was wanted by United State Government for drug traffickering.

Eastern Shan state was controlled by MTA which fought with United Wa State Army until 1996 January 5 on which U Khun Sa signed peace accord and dismantled MTA after facing difficulties at battle grounds in fighting with Wa army and Myanmar (Burmese) army.

In the Eastern Shan state , the regions , Loi Lan, Loi Tone, Mong Tot, Mong Hta and Homain have population of 400,000. There is poor soil condition to grow rice which is main food for the people. 262 villages located in the region grew the poppy as a major business. They grew 2700 acres of poppy producing 9800 kilos poppy. After signing the peace accord, the drug free zone project was commenced in the region. With help from UNDCP(United Nation), the project for planting the crops that replace poppy. 98.4 kilometers of road for the development of the region was constructed. 30 primary and middle schools including 3 schools with the assistance from United Nation were founded. The youths who have passed middle schools were provided scholorships to attend the vocational institutes in Myanmar capital cities.

1.0.4.2 The education system and the situation of schooling in Myanmar and Eastern Shan state

Commentators usually identify the mid 1960s as the time of fundamental change in the education system.The Higher (or University) Education Act of 1964, the nationalization of private schools in 1965 and the Basic Education Act of 1966 laid the foundation of the present system.
Until 1965, school education consisted of nine years schooling with a 4-3-2 pattern. In 1962, an additional year was added to matriculation studies increasing the school education to 10 years.(4-3-3),previously students have been able to attempt both the high schooling leaving examination and matriculation examination in the same year. In 1966, the Basic Education Law was introduced and ten years basic education changed to 4-4-2 pattern following a kindergarten year . Specialized high schools were established to provide technical, agricultural and other vocational education for the less academically oriented .

School education consists of five years of primary schooling (Kindergarten and standard I to IV followed by four years of middle school (Standard V to VIII) and two years of high school (Standard IX and X). On completion of Standard X , students must sit for the Basic Education High School Examination (BEHS Examination).Depending on the result of this examination, students may proceed to a university, institutes and technical colleges.

The Ministry of Education designs and controls the pre-tertiary curriculum and supervises examination at all levels of primary, middle and high school examinations.The major curriculum reform to Burmanise the syllabus and textbooks at the pre-tertiary levels were made after independence and the major reform to the tertiary system were made in 1964 with the new system.The main change to the curriculum from mid 1970s was the change to Burmese Medium Instruction. Since the early 1980s, English has become a compulsory subject from primary level and English medium instruction has been re-introduced at the tertiary level.

Prior to 1964, Standard X could be regarded as broadly comparable to completion of secondary education in Australia. Only the best students passed it at all, and many of them took a good deal larger than ten years of formal education to do so. Disruption to the education system, much

higher pass rates, the absence of a compulsory mathematics paper and the reduction in the weighting accorded to English in the new system mean that post 1964 Standard X matriculants are much weaker than those who came through before 1964 especially in English. The level of English proficiency is however increasing as those who started primary school in early 1980s when English was reintroduced at that level.

According to Myanmar facts and figures, the Revolutionary Council taking a socialist stand, formed the Burma Socialist Programme Party (BSPP) as a nucleus party on 4 July 1962 and announced it's philosophy in " The Correlation of Man and His Environment " in January 1963. The constitution of 1974 drawn upon socialist principles designated the BSPP as the leading party.

Continuing the economic policies , the Revolutionary Council, BSPP Government in 1975 started implementing the 20 years Economic Plan whose guidelines were adopted by 2nd party congress in October 1973 and which looked in the doubling of per capita GNP, the transformation of Burma from an agricultural country to an agro-based industrialized country and the full realization of Socialist relations of the production by 1994.

Because of a general dissatisfaction with the social and economic situation , a movement of protests developed in August 1988.Then the military government took the state power.According to the above facts, Burmese students passed through the instabilities in educational and social environment in Burma. They student face the situation of the educational and classroom environment which was totally influenced by the social economic situation. Such social economic situation impact on schooling especially in the regions like Eastern Shan State where there was instability in the region due to fightings among various rival armed groups.

But in capital cities, as the Government can control the stability, the development projects in education were laid down. 150 colleges and universities including government technical colleges were founded. In 2002, there are 2 Universities, 10 degree granting colleges and 1 college in Shan state including Pinlon University, Pinlon Technical college and Pinlon Computer college. 678 schools were built in the region where peace is restored and 82099 students are now attending the schools. 3057 teachers are appointed to the regions.New curriculum which is mixed with arts and science subjects was introduced in school education. Special technical courses were conducted for the students of the least developed region to perform the development works in their regions. But such efforts for educational development were disadvantaged by economic downturn and difficult economic situation at the current.

Apart from above politically and socio-ecomically influenced classroom environment in Burma, the cultural and tradition also influenced on it.
According to Myanmar Facts and Figures, it stated that life revolved round the village and the value of extended families were strong.The village, then was self contained agricultural unity of community life, the monastery served as the center of culture and education where all children could learn 3 R's. Education was largely religious and ethical rather than economic. Life and education were very closely related in those days as it had been in mediaeval Europe. That education or rather formal schooling was a preparation for life was introduced into Burma with coming of British.

In the present day, Burmese monastic education which had been the main stay of education in the country still exists side by side with the formal school system. Eastern Shan state was one of the least developed region. The education system was community based education which teach community culture and basic education.

1.0.4.3 The difference between the schooling environments in their birth place and in Myanmar capital cities

The ethic minority students' school education is most largely and adversely affected by problems of economic situation in Myanmar (Burma).

According to the REPORT ON WORKING CHILDREN AND WOMEN IN MYANMAR'S URBAN INFORMAL SECTOR (1994/95), the causes that Burmese students to leave the school are (1) No affordability of school expenses (2)To perform the household duties (3)To look after the children (4) To participate in household duties (5) To work (6) Due to disability and illness (7) To start the business (8) Due to no interest in school education and (9) Due to the belief that school education is useless in the life.

According to the statistics issued by Myanmar Ministry of National Statistics and Planning, the GDP percentage of Shan state is just 6.5 percent compared with Arrawaddy (19.9%), Yangon Divison (12.3%) As their main business in the region was growing poppy, they were lacked in other vocational skill and related studies. As the drug growing was the main business that give good earning , growing drug, protecting the drug business and serving for the ethnic armies that control the drug business were their past major aspect of life and work.. Thus the earning and economic performance of their native place is just one third to half of the cities regions. But now in cities, vocational and academic skills are important to survive the living. Their past attitude to earn money buy growing and selling drug was to be changed to motivation and commitment to acquire higher education and vocational skill under the law.

<u>1.0.5 Study on ethnic minority students' personal perception in school environment in cities</u>

The ethnic minority students who come to Myanmar capital cities faced the unstable situations in school education and social economic situations in their birth place because fightings among the rival armed groups was common in the past. Their learning environment and perception on the study was largely influenced by economic situation and social factors. Due to instability of school education, most of the students wanted to leave the school after completing primary education to work in poppy growing fields and to serve for ethnic national armies. They tried to complete the school as quickly as possible rather than trying to acquire the higher level educational knowledge and practising self discovering methods in the study areas. The teachers have to provide basic education to the students in short time. Thus their past socio-economic condition prevent the students' ambition to attend , acquire and complete the higher education.
As they passed through the refugee life such as in the refugee camps located at the border, their tough life, their facing of frequent closure of schools, no enough educational resources and no enough study especially in post primary / middle school education put the barriers on them in their continuation of school education in the cities.Thus their perception on the classroom environment in cities is affected by their past experiences and educational background. If a student possesses the enough proficiency in Burmese language which is the official language, they will not face the language barrier although they are in the new cultural system. But for ethnic minority students who recently arrive in Myanmar capital cities. the cultural difference largely affects on their perception in the study in Myanmar capital cities.

<u>#Thus teacher understanding of the educational background and social ,cultural</u> situation of the country from a place where an ethnic minority student comes from can assist the setting the setting of appropriate teaching strategy for them.

1.0.6 Selection of appropriate instrument to assess their perception and classroom environment of the classes being attended by them

Huang and Fraser (1997) reported that qualitative data involving interviews with teachers and students classroom observation were collected to complement the qualitative information and to clarify the reason for pattern and difference means in each country.

Fraser and Wubbels (1995) stated that learning environment assessment should be used in addition to student learning outcome measured to provide the information about subtle but important aspects of classroom life because teachers and students have systematically different perception of the same classroom.Thus students' feedback about the classroom should be collected. Teacher should strive to create productive classroom learning environment as identified by research.In order to improve students' outcome, classroom environment should be changed to make them more familiar to those preferred by the students.The evaluation of innovation,new curricula and reform efforts should include classroom environment assessment to provide the process measures of effectiveness. Teachers should use assessment of actual and preferred learning environment to monitor and guide attempt to improve classroom and school..Learning environment assessment should be used by school psychologist in helping teacher's change their style of interacting with students and improve their classroom and school environment.

According to information provided by Fraser, assessment of ethnic minority students' learning outcome, their feedback, their perception on teachers and learning environment which is different from their country of origin, determining the way to decrease the gap between their expected classroom environment and that they are facing currently are important aspects for community workers and tutors to improve their learning and attainment of good education.

Jill M Aldridge,Barry J Fraser.Tai Chu Iris Huang stated that the nature of curriculum was largely responsible for the type of teaching approaches used in each country.Similarly, Teacher Centered method which is suitable for text book based curriculum was largely applied in Myanmar.Both cities and rural students mostly expect that teacher has to provide every thing in the study and they will follow what ever taught by teacher. Thus the teacher is a main person to guide and direct the education of the students. The performance and attitude of teacher largely effects the performance of the students. Thus the teacher who teach the ethnic minority students have the duty and responsibility to prepare appropriate curriculum and teaching system as well as the program to integrate and absorb them into education and learning system in cities colleges.
According to new curriculums, the teaching strategy that encourages self reflection and discovery skills are increasingly introduced in Myanmar education system. Thus the ethnic minority students will also have to face with the change of curriculum together with students in capital cities.

But ethnic minority students who faced the social economic environment in border areas that they will have not only to give the time for their study but also to share the household responsibility with their parents and there is no time for them to develop self discovery and study skill. They continue their past habit in their birth place when they just arrive and begin the study in cities classroom. They continue to expect that the teacher will provide just the basic things and allow them to leave the course early so that they can do their family business in their native region.

Thus possessing the motivation in the study which comprises of intensive curriculum objectives and advanced study which will take long time with consistent and persistent efforts for them is the major obstacle for the ethnic minority students.

Detailed expression on executing the tasks to motivate the ethnic minority students, recording their performance and attitude, recording their improvements in classrooms and detailed expressions such as # How the data are obtained from the target source involving ethnic minority students who are attending primary, secondary and tertiary/vocational classes # Strategies on collection of data by applying quantitative and qualitative methods etc will be explained in the next sections.

1.1 Research Inquiry

An appropriate research methodology for exploring this particular question/ how appropriate/ what

As the objective to do the research is to investigate the behavior of the students and effectiveness of teaching strategies to improve their behavior, action research method is to be applied. Action research is a powerful form of professional development. The focus of inquiry and interest in action is my own practice in students' learning environment, behaviorism and assessing the effectiveness of my application of teaching strategies.

Comment to collaborative inquiry with the work of individuals encouraged and supported, it allows the possibility for real change as alternative interpretations of evidence are considered. Reflection point is basis for discussion for beginning of action research project. The reflection point for the action research project is how students' behavior change and responds to my application of appropriate teaching strategies that suit their academic needs and requirements. In the project, I will make a plan of classroom inquiries, discussion with students, observation by other staff members and those responsible for curriculum and students' behaviorism. My action will involve professional learning, collection of data , preparation of documentations, record of professional learning, case studies that provide public account of the project, form of mutual administration and starring information.

In my action research, the participants are my students. They are not passive recipients of learning but are active constructors and co-participants in the research action. I will have to decide on the target of action than to take action. Reflection and collecting evidence are applied by going backwards and forwards.

The behavior problem in mathematics class during their transition period is specific problem that was going on with students of age group 14-16. The proposed action can be targeted more precisely. The problem that I will have to deal with is a task to improve behaviorism of students by applying appropriate teaching strategies. The reflection points are effectiveness of teaching strategies on students' behavior, students' participation, attitude, cohesiveness, satisfaction and understanding.

In the research project, planning is to be done. Planning arises out of reflection and occurs on the basis of evidence about what has been occurring. In the case, the occurrence of behavior problem and significant change of behavior due to application of appropriate teaching strategies are reflection points. My focus for change is a context in which teaching and educational evaluation practice are applied by me. Performing

research action to improve a behaviors and academic achievements of students is not a matter of implementing a set of professional practice, judgement and the ability to think by myself. It has participatory nature in which I need to select who should be part of action. I will have to carefully select students according to their ages, socio- economic background, past academic achievements to involve in planning and carrying out the action. Students are among the greatest resistors of change. As they change from rural schooling at border region to vocational schooling in cities, their past experience and behavior in schooling at their community schools resists the new environment and their new learning experience in schooling in the cities where they are minorities.

My   research action involves monitoring the interaction between teacher and students and all begin helping each other to change. Negotiation and preparation are required prior to planned change. My application of research method and addressing the problem and research question consists of carefully planned actions and tasks which are carried out so that the desired improvement in students' behavior will occur. It needs evidence of what occurs in order to have a rational basis for making judgement on what happened as well as providing basis for further planning.

Reflection provides a basis for planning the next phase of action. My reflection on how I can get the data, how the data relate to students' behavior, how the data are appropriate to actual situation are the reflection points.

Reflections are made on justifiable judgement and hidden assumption and value. The reflection allows me to make judgement on the basis of perpetuating action that supports and reinforces these values. Critical reflection involves questions such as how would I organize reflection upon the evidence that I imagined above. Who would be involved? What might this reflection tell me?

	Procedure (1) Method for examining students' behavior during transition period	Procedure (2) Survey method for examining effectiveness of teaching strategy
Method	Quantitative	Qualitative
Time table	Short time	Long time
Approach	Systematic and comparable way	Flexible approach
Data source	One	More than

Qualitative method assessses how appropriate teaching method and curricula can improve students' behavior in transition period requires prolonged engagement, persistent observation and triangulation . It requires investment of sufficient time to achieve learning outcome. Testing for misinformation and introduction by distortion either of the self or of the respondents and building trust.

Especially in quantitative method, there are always prior formulation as attested to by the fact that it is always possible to write out a head of time what one expects to find there.

This possibility also provides the basis for a test. To provide the opportunity for me to build trust, I need to take prolonged engagement. The data collected for quantitative method, are obtained from different methods or collected from different sources such as teachers, students, administrators. When they agree, the outcome is convergence. Triangulation is used for the procedure. The data obtained through may be inconsistent, not confirming but confirming but not contradictory. But the data collected for procedure quantitative method are based on questionnaires and are only from one source- students.

In qualitative method, all of the outcomes of triangulation, convergent, inconsistent and contradictory need to be filtered through knowledge gained from the immediate data, the project, program context and understanding of the larger social world. Qualitative method also requires to concern the fact that criteria defined from one perspective may not be appropriate for judging actions taken from another perspective. Selection of topics to be investigated, setting of survey venue, history of past academic performance and the construction model for the studies to know relationship between survey steps also influence the reliability of data.

Especially in quantitative method ,the concept of triangulation by different methods can be achieved by using different data collection made (interview, questionnaires, observation, testing).

Practical Implementing the planned inquiry

Examining students' behavior during transition period

Classroom observation , asking the questionnaires, examining the students' classroom activities, performance in examination and academic achievement in the subjects are to be inquired. Data are to be triangulated and result is to be interpreted. Appropriate change of teaching strategies are planned to provide appropriate teaching and learning system for students.

Examining effectiveness of teaching strategy

Depending on the survey result, teaching strategies and lesson planning are arranged to provide teaching and learning that meet the requirement and learning situation of the students. Students' performance and indications on their change of attitude and commitment to study are recorded. Improvements are also noted. Conclusion is made and the results are discussed with colleagues. Member check is conducted.

1.2 Research Questions

The research topic "Improving Myanmar Ethnic Minority Students' Perception on Science and Mathematics Classrooms Environment of Higher Vocational Education Institutions " composes of two major research questions that are identified.

(1) How do Myanmar Ethnic Minority Students ' behaviour deteoriates in transition period of changing from rural schools in their birth places to higher vocational education institutions in the cities?

(2) How can appropriate teaching method and curriculum improve their in transition period?

As they came from least developed rural and mountainous region in Myanmar borders , the technical development in cities and the science lessons that are related to such development are the major barrier for ethnic minority students to understand such lessons. Appropriate extra efforts and lesson plans are required to narrow such gap. Not only setting plans for physical learning environment, but also intensive study on student-teacher interactions are required. The research questions are prepared to accomplish the task.

Their past educational environment was largely disadvantaged by instability at the border. The ethnic minority students only emphasized in their daily survival rather than having plan to achieve the higher education and long time learning. Thus the questionnaires were arranged to study their past experience, attitude and commitment to learn and their change of attitude after they get the chance to study in cities.

As ethnic minority students left their families , relatives and birth places and came to cities of different living style and environment and development, their attempt to familiarize with new classroom environment and living style influence on their perception. Their new classroom and neighbourhood is generally perceived to be less favourable than their native birth places in terms of less cohesiveness, less leadership, less helpful/ friendly, less understanding and reduced teacher's attention on individuals and more uncertainty in their study aid and dissatisfied teacher behaviour due to different cultural and language background.

The qualitative data consisted of students' description and comments in response to set range of open questions regarding perception of their classroom environment and their behaviour in transition period were arranged.

The classroom climate in the class which is attended by large number of ethnic minority students is to be improved by making a pleasant stimulating atmosphere, planning the cross cultural activities, arranging the programs for cultural understanding, making encouragement and setting the bridging lessons for reducing their difficulties on strange teaching environment and lesson contents.

It is more important to reward the students for their achievement in lesson by overcoming study difficulties caused by different classroom environment. To improve students' outcome, the preparation of appropriate study contents, teaching style and approach methods are to be prepared by accompanying appropriate teacher's effort to narrow the learning deficiencies due to cultural differences.

The study is to be done on how students' behaviour are to be improved by performing the following tasks by teacher.

(1) Studying culture, living style and language of ethnic minority students.
(2) Addressing the points that reduce their perception on subject matters.
(3) Use of appropriate strategies to improve their learning environment and to overcome study difficulties.
(4) Use of effective activities designed to develop ethnic minority students' mathematics knowledge/ skills with understanding.
(5) Effective recordkeeping and journals on their improvement, anadodes and their perception.
(6) Use of assessment priorities that looks beyond what the students can obtain the answer.
(7) Use information about students' misconception to guide future planning.
(8) Provide sufficient opportunity to provide their skills.

Action research method is utilized. Data are collected from students' before applying appropriate learning strategies that promote classroom environment and after applying such learning strategies. The data will cover the range of questionnaires in the aspects of satisfaction, friction, difficulties, cohesiveness, competitiveness , leadership, helpful/ friendly, understanding, students' responsibility, freedom, uncertainty, dissatisfaction, admonishing and strictness.

<u>Examing effectiveness of teaching strategy</u>

Depending on the survey result, teaching strategies and lesson planning are arranged to provide teaching and learning that meet the requirement and learning situation of the students. Students' performance and indication on their change of attitude and commitment to study are recorded. Improvements are also noted. Conclusion is made and the results are discussed with colleagues. Member check is performed.

2.0 Selection of Instruments and Appropriate methods

2.0.1 Selection of Instruments

In the research action project, the following instruments are used to assess the classroom environment of the classes which are mostly attended ethnic minority students.

(A) What Is Happening in this Class (WIHIC)
(B) Questionnaires on Teacher Interaction (QTI)
(C) Constructivist Learning Environment Survey (CLES)
(D) My Class Inventory (MCI)
(E) Individualized Classroom Environment Questionnaires (ICEQ) and Classroom Environment Scale (CES)

All questions in the above instruments are translated into (Myanamr)Burmese language which is the official language for ethnic minority and majority to provide them to ethnic minority students. Although all questions are based on original instrument, a little modification is made to suit with the learning environment background of ethnic minority students to imagine the situation especially in application of CES,ICEQ and MCI.

2.0.1.1 What Is Happening In this Class (WIHIC)

As the WIHIC questionnaires bring parsimony to the field of learning environment by combining modified version of the most salient scale from a wide range of existing questionnaires with additional scales that accommodates contemporary concerned. Haung and Fraser (1997) have successfully used them to assess Science classes in Taiwan and Australia. Such questionnaires are selected to assess the classroom environment of the classes attended by ethnic minority students.

Familiar educational process. Beliefs, teaching methods and student attitudes differ between ethnic minority students and ethnic majority students. The social- cultural factors also influence on classroom learning environment. Ethnic minority students who attended the classes in their birth place which are influenced by social-cultural factors in their birth place will face the new situation in the cities classrooms which are also influenced by social-cultural factors of ethnic majority people.To try to validate a learning environment questionnaires for use in two situations where one is the case of ethnic students recently arrived in cities and the other one is the case of ethnic minority students have learnt the study under implementation of new teaching strategies By this way, the differences between classroom environments that ethnic minority students have experienced and that they are facing can be identified and the factors that influence on the learning environments in different cultures can be validated.

Tobin & Fraser (1998) and Tobin,Kahle & Fraser (1990) stated that the use of qualitative methods in learning environment research also provided a move in-depth understanding of learning environments. The combination of quantitative and qualitative methods has been a feature of recent research. The quantitative methods associated with WIHIC questionnaires and the qualitative method that associated with study on educational background, interview and observation are combined.

The dimensions that assess the classroom environment are student cohesiveness, teacher support, involvement, investigation, task orientation, co-operation and equity.

The extent to which ethnic minority students know, help, and support one another in cities classrooms, the extent to which the ethnic majority teachers help, be friend, trust and show interest in ethnic minority students of different culture, the extent to which ethnic minority students have the attentive interest in participation in the classroom activities, in performing additional work and enjoying the classes in cities where there is different culture, the extent to which their ability to emphasize in the skill, the process of inquiry, problem solving and investigation, the extent to which their ability to complete the planned activities in their study in cities and in the focus on their subject matters, the extent to which ethnic minority students co-operate rather than compete with those from other cultures and the extent to which ethnic minority student are treated equally by the teacher are to be detailly examined.

This cross-cultural nature of study lead to a multi-method approach to allow triangulation of the of the methods and cross validation of datas.

Validation of methods

Keeves & Admans (1994) and Tobin & Fraser (1998) stated that multiple methods in comparative research are useful to achieve greater understanding, cross cultural studies, cultural representations combined with WIHIC methods are useful to achieve the greater understanding of ethnic minority students by ethnic majority teachers and then their educational strategies can be more effectively set and validated.

Th^Page^e validity of the questionnaires is also required to ensure that the question used are appropriate to their situation so that the effective image on their perception and learning environment can be acquired.

When interpreting the data in term of scales of WIHIC questionnaire, the reflection of scale which is educationally important in the social and cultural environment in which ethnic minority students are studying.

2.0.1.2 Questionnaire on Teacher Interaction (QTI)

Wubels and Breklman (1998) and Wubels & Level (1993) performed the research which was focused on the nature and quality of interpersonal relationship between teacher and students.The QTI was developed to assess students. The QTI was developed to assess student perception of 8 behaviour aspect-DO Strict behaviour, DC Leadership behaviour, CD Helping, friendly behaviour, CS-Understanding behaviour, SC Student Responsibility,freedom behaviour, OS dissatisfied, OD Admonishing behaviour.

As the educational system in ethnic minority students is largely connected to transitional cultural aspects. Ethnic minority students who were taught by ethnic majority teachers in their life of schooling in cities will face the different situation of teacher interaction in cities classroom when they begin their study in cities.

The QTI method is also applied to study the nature and quality of interpersonal relationship between ethnic majority teachers and ethnic minority students.

In Burma where both majority and minority people are residing, most parents like the strict teacher who put a lot of efforts in teaching the students. Even if a student fails in the examination although teacher put a lot of his or her efforts, the teacher used to be excused by the guardians that he or she has performed the good job but the fortune did not favor the student to pass the examination. It is our Burmese traditional belief related to Buddhism which encourages the excuses.

But there are a lot of evidences that the private tutors who can provide the lessons which contains the methodologies to make the students like them and the pleasant stimulating atmosphere, a lot of Burmese students are stimulated into the study. The tutors who can effectively apply such principle are famous for their efforts.

As the interpersonal relationships between teachers and students in the classroom in Burma are mostly related to traditional beliefs, cultural aspects and stimulating atmosphere which is important pre-requisite for learning, the study on the interpersonal relationship between Burmese ethnic minority students and ethnic majority teachers are to be done so that the study on what preferences ethnic minority students have about their relationship with their ethnic majority teachers, how ethnic majority teachers would like to behave towards ethnic minority students and what teacher-student relation is common in the cities classrooms mostly attended by ethnic minority students can be made.

The questionnaire on Teacher Interaction is used to map ethnic minority students and their ethnic majority teacher's perception using a model for interpersonal teacher behaviour. Teacher behaviour has a Proximity Dimension (Co-operation, Opposition) and Influence Dimension (Dominance, Submission). The teacher behaviour is also known by the sectors which are affirmative and opposition portions of above behaviours.

Validation

The comparison of actual ethnic majority teacher's perception is compared with ethnic minority students' perception of their teachers who have strong understanding in cultural difference and those who have poor understanding in cultural difference. The information about the reliability of the questionnaire is concerned with students' understanding in the questionnaires, their interpretation of the meaning and the situation which is related to their real experience.

Based on those factors and by taking account in different social cultural aspects, the reliability factor is estimated. The validity is also performed by the consideration on how the questionnaires are related to students' classroom experiences and their study.To increase the reliability, students are   encouraged to read the questionnaires and allowed to ask the questions until the time all of them fully understand the questionnaire. Thus their answers recorded on the question sheets are assumed to be reliable.

2.0.1.3 Constructivist Learning Environment Survey (CLES)

Meaningful learning is also required for ethnic minority students to develop their cognitive process of making sense on their learning in cities in relation to the knowledge which they have already constructed during their schooling in their birth place.

The CLES is also utilized to assess the degree, the degree to which a particular classroom's environment is consistent with a constructivist epistemology and to assist teachers to reflect on their epistemological assumptions.

CLES assesses either student or teacher perception of personal relevance, uncertainty, student negotiation, shared control and critical voice. The major cultural restraint which were caused by the difference between the cultures of ethnic minority and majority counteracts the development of Constructivist Learning Environment for ethnic minority students. The new CLES which was trailed in two large scale quantitative survey of classroom learning environment and which possesses the internal consistency, factorial validity and cross cultural integrity is applied to assess the learning environment.

To facilitate the conceptual development of ethnic minority student in their study in cities to highlight the key role of students' prior knowledge in their development of new conceptual understanding and the reflective process of interpersonal negotiation of meaning within the consensual domain of the classroom community.

Due to language barrier and cultural difference, majority of Burmese students hesitate to communicate with their teacher in cities.The communicative relationship is limited between them and their ethnic majority teachers. The community or home tutor takes the role as mediators of ethnic minority students' encounter with their social and physical worlds and as facilitators of students' interpretations and reconceptualization.

Rich communicative relations are born of open discourse (Taylor & Campbell Williams (1993)).It is important for ethnic minority students to acquire the opportunities of (1) Negotiation ability with ethnic majority teachers about the nature of their learning activities (2) Participation in the determination of assessment criteria and undertaking self assessment and peer assessment (3) Engagement in collaborative and open ended inquiry with fellow students from other culture and (4) Participation in reconstructing the social norms of the classroom.

The personal relevance scale is modified to focus on the connectedness of the study in cities classroom to ethnic minority students' out of school study. The uncertain scale is also modified to which opportunities are provided for students to get the experience in their study and knowledge as evolving non-fundamental and culturally and socially determined.

The shared control is concerned with ethnic minority student being invited to share with teacher's control of learning environment and the student negotiation scale assesses the extent to which opportunities exist for ethnic minority students to explain and justify to other students of different cultures about their newly developed ideas, to listen attentively and reflect on the viability of other students' ideas and subsequently to reflect self critically on the viability of their own ideas.

Validity

CLES is to be validated by determining the way to provide the best support for students and to enable them to create learning environment in which the students feel empowered.

2.0.1.4 My Class Inventory

My Class Inventory scale is also applied to assess the changes occurring as ethnic minority students transfer from classroom in their birth place where they used to the learning system under influence of their own culture with the classroom in cities where they have to start from the beginning to attain the level of proficiency and familiarity with the education system of ethnic majority people.

QTI was used in association with my Class Inventory (MCI). The learning environment was measured with My Class Inventory (MCI , Fisher & Fraser 1981) and the Questionnaires on Teacher Interaction (QTI: Wubbels 1993) short form.

MCI assesses the five classroom climate scales of ethnic minority students' satisfaction, friction related to new learning environment and methodology, difficulty in schooling in cities, cohesiveness between them and with other students of different cultures and competitiveness.The assessment is made on their condition before transition from the education system at their birth place to education system in cities.

QTI is also applied to assess ethnic majority teacher and ethnic minority students' interactional behaviour with the eight dimensions of leadership, helpful/friendly, understanding. student responsibility, freedom, uncertainty, dissatisfaction, admonishing and strict behaviours.

2.0.1.5 Individualized Classroom Environment Questionnaire (ICEQ) (Fraser 1990) and Classroom Environment Scale (CES) (Moos & Trickett 1987)

Among the many ways to describe the learning environments experienced by students and teachers, for ethnic minority students and their ethnic majority teachers, certain construct such as task orientation is more important to produce the clear picture of determining the differences between ethnic minority students' and ethnic majority students' perception of the same classroom.(Referring Fisher & Fraser 1983), determining the practical way for ethnic majority teacher to improve classroom learning environment (referring Thorp,Burden and Fraser 1994) and use of learning environment ideas in psychology and counseling ethnic minority students to determine their career direction.

Although ethnic minority students have their own experiences and preferred learning environments, those instructions are constrained by interactions with others and characteristics of the culture which is different from their own culture and the culture which learning is situated.

Thus the practice of them are shaped by social structures in cities, relations of power and nature of activities in which they engage. The cultural diversity is a challenge for ethnic majority teachers to provide good education to ethnic minority students of different cultures.As the students have the autonomy to ask the teacher when they do not understand the lesson, the teacher's focus on the re-presentation of the learner is what is critical about co-participatory

environment.   The mediating role of the teacher of ethnic minority students'class is focussed not only on what the student knows but also on the identification of activities that can continue the evolutionary path of the classroom community towards the attainment of agreed upon goals.

Thus the results obtained by ICEQ and CES can provide the information on the clear picture of personal isolation, participation, independence, investigation, differentiation, task orientation, involvement and teacher support to identify the problems and possible solution so that any difficulties in learning environment can be overcome.

2.1 Value, appropriateness of the research method

The use of action research method is appropriate to my study. As I intend to conduct the research in school and classroom environment, action research is appropriate to it because action research possesses the democratic form. Being a practitioner who is engaged in systematic reflection and action in relation to some aspects of his or her practice. The action research method that I select is appropriate to school situation.

As the project work that I undertake is in school and classroom environment, by selecting action research method, it provides flexible working condition, as well as convenient arrangement of venue, materials and meetings.

The value of action research that I will obtain is critical understanding of my work, access to work of my colleagues, role playing by outside facilitator and when the work is opened for critical reflection, the facilitator can claim the privilege in critical interpretation on the evidence of the work of others. Especially in school environment, I can do critical interpretation on the effectiveness of teaching strategies on students' behavior.

The selection of action research can provide valuable on going professional development to me because it is a form of practical action which teachers undertake as part of , not separate from the professional work. It can provide experiences to various degrees such as what we will need and which way it would be appropriate to go. It is also appropriate to professional development such as crucial to think of learning from others and sharing experience.

My aim to select action research is to achieve improvement in students' behaviors by providing appropriate curriculum contents that suit their interest and understanding both the practice and the situation. My other aim is to get involved in expending focus on the processes which is directed toward and directed by those who are actually taking part in educating students.

The action research also consists of the techniques which are feasible, relevant to questions, appropriate evidence, easy to analyze or interpret, point to action, monitoring

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overtime, enough time to collect evidence and availability of resource as well as physical requirements such as personal reflection and regular way of working.

The validity or contribution of the research perspectives, also depends on importance of generalizability, predictability and control, explanation of variance and meaningful understanding. Well demonstrated acceptable alternative criteria are proposed and their use are defended.

In my action research on how appropriate teaching strategies can improve students' behavior, combination of quantitative and qualitative approaches are applied. The concern for applying quantitative research method is to do deductive testing of theories in deterioration of students' perception which was caused by school level environment and that for applying qualitative research method is more concerned with exploring a topic namely the students' possession of better attitude when the teacher takes care of individuals and providing assistance to their needs and interest.

The data such as number of students who easily give up the challenging task in daily mathematics topics and mathematics learning before applying appropriate learning strategies that provide their needs and the increase in the number of students who achieve the higher score in mathematics tests after applying it. Once a teaching strategy was developed, it will be tested against the outcomes such as students' attitude, noise level in the class, number of incidents in class etc.

Neither approach is always superior to the other. Each approach has its strength and weakness and over reliance on any one method is not appropriate. Both approaches are needed. In the light of those strengths and weaknesses, it needs to select an approach or combination of approaches. It is not clear what research actions are in advance of the research or it is not appropriate to try to establish those firmly during the planning stage. The specific focus and research questions merge during the inquiry rather than ahead of it.

The necessary data are collected and analyzed, The requirement of quantitative method, answers, qualitative method and data will be required depending on the situation. The quantitative approach conceptualizes reality in terms of variables and relationship between them. It rests on measurement and therefore pre-structures, data and usually research questions, conceptual frameworks and design . Samples are typically larger than those in qualitative studies. Generalization through sampling is usually important. It does not see context as central, typically stripping data from their context and it has been well developed   and codified methods for data analysis.

Its method in general are more uni-dimensional and less variable than qualitative methods. It is therefore easily applicable. Qualitative approach deals more with cases. It is sensitive to context and process to life experience and to local grounded and the researcher tries to get closer to what is being studied. As it aims for in-depth and holistic understanding in order to do justice to the complexity of social life ,samples are usually

small and its sampling is guided by theoretical rather than probaloistic consideration, pre-structuring of design and data is less common and its methods are less formalized rather than those in the quantitative approach. They are also more multidimensional, more diverse and less replicable. It, therefore, has a greater flexibility.

To determine which method is applicable, the following questions are applied.
- Should I take a quantitative approach to the topic or qualitative approach?
- What, exactly am I trying to find out ? . In this situation, there is very likely to be interaction between the questions and the methods. The method established earlier , where content and research questions come first and methods come later is valuable as a guiding principle.

In the question " What exactly am I trying to find out?" the word " exactly" is important. It often seems that a question could be tackled quantitatively or qualitatively. This leads to the point that different questions require different methods to answer them. The important thing is the matching of question with method using quantitative method for quantitative questions and qualitative method for qualitative questions. Regarding the literature, the questions to be considered are what guidance on the issue of a quantitative or qualitative approach to this topic, do we find in the research literature? and to what extent, do we wish to align this project with that literature?

Practical consideration is also to be done. There will sometimes be widely different consequences in practical and resources terms between the two approaches, these can be decisive. In the knowledge pay off aspect, the question here is" Will we learn more about this topic using the quantitative approach or the qualitative approach to this topic? Do we find in the research literature? " and "To what extent do we wish to align this project with that literature?
Which approach will produce more useful knowledge? Which will do better? The last factor is style in which there are a variety of reasons, one approach over the other. This may involve paradigms and philosophical issues.

3.0 **Methodology & Research Standard for Validity**

3.0.1   Methodology

3.0.1.1 Methodology used for What Is Happening In this Class (WIHIC) method

The reason to adopt WIHIC in the class attended by ethnic minority students is to assess the classroom environment influenced by the social- cultural factors.

The research and survey work were conducted at the schools where ethnic minority students are attending .Both quantitative method and qualitative methods are used in the research work Making the individual interviews, collecting the information from individual student as well as visiting the schools and classrooms.

In cross cultural study, cultural representation is constructed in term of the researchers' own culture, thus making method and methodology are inseparable(Van Maanen 1988). To study the cultural aspect, the method and methodology are modified to determine the students' view on how learning is affected by different cultural aspects.Appropriate questionnaires which are related to the method of approach relevant to age, educational level and life experiences possessed by Burmese students are prepared.

Multiple method in comparative research are useful to achieve greater understanding (Keeves & Admans 1994,Tobin & Fraser 1998). Thus to achieve the greater understanding on ethnic minority students'classroom environment and climate, multiple methods involve interviewing ethnic majority teachers who teach ethnic minority students, ethnic minority students and home tutors who assist ethnic minority students' home work to determine their reason for various actions and to learn whether the classroom environment created by different teachers were influenced by social-cultural factors.

To achieve it, interviews with both ethnic minority teachers and community tutors were made. The ethnic majority teachers mostly commented that ethnic minority students are polite, but they required more self initiation and self discovery skill as well as more motivation and commitment for achieving the study goal. The community tutors can provide the detailed information for each students such as their educational background, parents etc.

Quantitative datas are prepared to assess the learning environment and students' attitudes, involvement, investigation, task orientation, co-operation and equity. In these cases, the facts are collected on how ethnic minority students involve in the classroom discussion and case study, how they investigated the problem of study, how they perform the presentation, report writing, note taking, how they co-operate with their classmates from other cultures and how they feel that they are given the equal chance in the study by their teachers and tutors. Those quantitative method is used to prepare the questions to be filled by the students.

Qualitative method is also applied to generate the qualitative datas to provide insight into students' perception. By interpreting the study and analyzing the datas, it examines the social cultural factors influencing the learning environment.

Study is also made to determine whether ethnic minority students can interpret the items contained in the questionnaires consistently as well as their reason to respond to the questionnaire items. By this way, more accurate interpretation of qualitative data is achieved as well as

understanding their perception and feelings about the particular aspect of their classroom environment.

The question to examine the similarity and differences between learning environments in their birth places and cities from the students perspective. Students' stories about their learning experience in the cities classroom are also noted. The facts and questions used are also considered whether they can actually reflect what is important in the culture and education. The reason to do the qualitative assessment is also to determine the reliability factor for their answers for the questionnaires.

The words in the questionnaires are also discussed with the respective school authorities so that the accurate meaning can be achieved. Particular attention is paid to the point of whether the teacher used the variety of teaching methods to promote the ethnic minority students' understanding or not and whether opportunities are provided for the students to get involved in the discussions, group activities and co-operative works or not.

Although I am able to incorporate the qualitative method, there are some strengths as well as limitations. Thus for them, an overall assessment on their courses rather than the assessment in each subject discipline can only be made. Sampling method is more appropriate to use in this case.

3.0.1.2 Methodology used for Questionnaire on Teacher Interaction (QTI) method

Questionnaire on Teacher Interaction method is used to study the interpersonal relationship between ethnic majority teachers and ethnic minority students. The questionnaires to collect the information on how Burmese students want their teacher to behave and how they feel their actual performance are prepared and modified to get such information. The questions related to how ethnic minority students described their best teacher in cities classrooms is also included in the survey. In this fact, ethnic minority students' perception on two different teachers :one possesses the strong understanding in the cultural difference and the possesses the weak understanding in that aspect is also studied through their questionnaires for ICEQ & CES methods.

Before providing the questionnaires, the explanation about the reason of making this survey work, the study is made on how the outcomes of the survey work can give the benefit to the ethnic community education classes and education departments in their research on the cross cultural studies and how teaching and learning system can be improved and how such information is useful for ethnic minority students units of the educational establishments.

By discussing with the authorities of the school where ethnic minority students are attending, they welcome the study in the classroom environment of the ethnic minority students to promote the teaching system. To study the actual classroom behaviour, the scales of leadership, friendly and understanding behaviour, uncertainty, dissatisfied and admonishing behaviours are utilized.

The qualitative assessment involving the interview with the students in the aspect related to the attitude of their teachers are also made and ethnic minority students' achievement in their understanding of lessons, their view on how the teacher who understands the cultural differences should behave are also acquired. They prefer the more attention from the teacher. Most of teachers ask the questions to the students who raise the hand. Some students who came from ethnic minority backgrounds use to hesitate to raise their hands. To provide the individual attention, the teacher has to ask the questions covering all students in the class and the encouragement is to be made on the answers provided by the ethnic minority students. Ethnic minority students preferred the teacher who can understand them.

Although I can successfully integrate the qualitative methodology, some students can clearly remember their experiences in their community classrooms at their birth place but some can not perfectly remember their learning experiences over there as they have faced a lot of struggling for their living at instability border places where they were born and grown up. Thus to complete the picture of their learning experiences in their birth place, the discussion with their peers and collection of the information regard to the situation of the classrooms in their place in the recent time by telephoning the school contacts in their place is also performed.

By this way, we can find the behavioural aspect that can be mostly percepted by ethnic minority students to promote both student achievement and attitude in cities classrooms.

3.0.1.3 Methodology used for Constructivist Learning Environment Survey (CLES)

Constructivist Learning Environment Survey (CLES) is used for assessing the condition to provide the meaningful learning of ethnic minority students in culturally different cities classrooms.

The method includes the assessment on the dimensions of a critical learning environment : personal relevance, uncertainty, critical voice, shared control and student negotiation.The question related to focussing on the connectedness of the study in cities classroom to ethnic minority students' out of school study in investigating ethnic minority students' experience in their study and knowledge as evolving non traditional and culturally and socially determined in examining the extent to which a social climate has been established in which students feel that it is legitimate and beneficial to question the teachers' pedagogical plans and methods and in expressing concerns about any impediments to their learning.

The question related to concern with students being invited to share with the teacher's control of learning environment including the articulation of learning goals, the design and management of learning activities, the determination and application of assessment criteria as well as those related to the extent to which opportunities exist for the students to explain and justify to other students   from different cultures to develop ideas , to listen and reflect on other students' ideas and to reflect self critically on the viability of their own ideas are also utilized in the method.

Manual scoring of questionnaire response was planned. To get the more reliable responses, CLES focuses the students' attention on the specific learning environment of interest and made the process of responding to item as a more meaningful activity.

The usage of language is as clarified as possible to minimize the use of negatively worded questions.4 CLES scales (personal relevance, critical voice, shared control, student negotiation) are utilized in the forms for two levels of analysis (the individual and the class mean).

The study will also involve how the systematic provision of educational opportunity and it's relationship with educational attainment.

The questions which are used to explore the relationship between teacher's sense of self efficiency and their commitment to engage with the students in the ethnic minority education classroom and how best might the students be supported are also arranged.

CLES is also applied to enrich ethnic majority teacher's understanding of the impact on students of their teaching innovation and determine the way to reduce the possible counter productive impact of their reform endeavors.

By this way, the more constructivist approach to provide the meaningful learning to ethnic minority students who use to have the experience with the Rote Learning which was widely utilized in classrooms is achieved.

The internal consistency of 5 CLES scales (personal relevance, critical voice, shared control and students' negotiation) are also measured and provide the way to improve the consistency. Then the appropriate writing with consistency are used in the method.

3.0.1.4 Methodology for My Class Inventory Method

Most of ethnic minority students face the transition from their community classroom to cities classrooms. The attitude of the students deteoriated during the transition period especially when they face the difficulty to understand the cities classroom, nature of teaching methodology and the self reliance situation in their study.

Although my Class Inventory method is designed for assessing the ethnic minority students in cities classrooms because they will have to learn a great deal of foundation studies in education as they did not attend school well at the border areas.But depending on past educational background, work experience and maturity, they may take the short time to get familiarity with the courses which they are attending at the present.

As the Teacher Interaction plays as an important aspect of their learning, the combination of MCI and QTI are used. MCI portion measures satisfaction, difficulty, cohesiveness and competitiveness (Fraser & O'Brien 1985) and QTI is applied to assess teacher-student interactional   behavior with 8 dimensions of leadership, helpful/friendly, understanding, student responsibility/ freedom, uncertainty, dissatisfaction, admonishing and strict behaviour.

The students' perception results are collected at the stage when they first enroll the classes and when they have attended the class for a significant period. Their perception changes are determined in the aspect of their background, gender, age and their living in cities.

The positive and negative changes are also determined and how they are influenced by the behaviour of teacher, support and assistance of the community, community assistance program and study support programs provided by the Department of Education.

Investigation is also performed on how conceptual and meaningful learning depend on the transition and how the cultural competency affects their perception. The intensive observation is made at the classroom discussion with teachers, community support workers and community leaders. The informations are collected from the relevant community education center to include in the questionnaires.

In determination of reliability factor, the students' understanding on questionnaires, the accuracy of meaning of the language, the other influential factors such as their attitude in the process are also considered. Their answers for the questionnaires are also verified with their parents' comment, their home tutors' comment and, community school co-ordinator's comment and their school records.

A comparison of how students' perception changed as a result of their first exposure on teacher centered method in the came culture and student centered approaches in the different culture in cities is also made. Such study is conducted in the method (4) My Class Inventory.

3.0.1.5 Methodology used for Individualized Classroom Environment Questionnaire (ICEQ) and Classroom Environment Survey (CES)

The Individualized Classroom Environment Questionnaires and Classroom Environment Scale (CES) are used to assess their perception on different teachers with different understanding in the cultural difference.

The questionnaires consist of the facts for teacher support, participation, task orientation, co-operation, innovation, personal relevance (Fraser 1994).Those questionnaires also incorporate the new scales to measure a variety of constructs which reduce the complexity of What Happens in the Classroom and focus on the selected aspects of teacher actions and interactions. As the students faced their teachers with same cultural backgrounds in the border areas and those from different cultural background in cities, by comparing the learning environments experienced by them, it can determine the way to reduce the gap which influenced on their learning and such finding can be utilized as the information provided to community tutors who assist the students in their study.

In the study, application of both qualitative methods which consist of interviews, discussions, collecting the information and qualitative method which consists of filling the questionnaires. The five scales of Constructivist Learning Environment Survey (CLES) (Taylor, Dawson and Fraser 1995) including personal relevance, the use of extent knowledge to construct new ideas, negotiation of meaning and social constructivist perspectives are applied in the action research work.

The mediating role of the teacher which is focussed on what ethnic minority students know, how they can represent what they know on the identification activities that can continue the evolutionary path of the classroom community towards the attainment of agreed –up on goals is also observed.

The questionnaires related to personalization, participation, independence, investigation, differentiation, task orientation, involvement and teacher support are also applied in the action research work. The extent of ethnic minority students can express the critical opinions, the extent

of the teacher encourages the ethnic minority students to make the voice on their opinions and suggest the alternatives, teacher's encouragement on the ethnic minority students to exercise autonomy and act responsibility are also studied.

The observation and assessment on the quality of ethnic minority students' negotiation which is a critical factor in determining whether or not the student constructs the understanding that is relational and transformational is also done. Such qualitative assessments are performed to determine the reliability factor for the answers on the questionnaires included in the Method (5) ICEQ and CES.

The quality of interaction which is an important aspect of what occurs and the quality of learning environment are also observed. As most of ethnic minority students arrived in cities under the refugee scheme , their past experiences of passing through the tough live can still reflect their present learning such as they are afraid to raise the question to their teachers to explain what is confused to them.

The extent of their anxiety, perception and encouragement are also studied to find the way to encourage them to effectively participate in students centered learning process which is the major methodology in cities. The list of their most enjoyable subjects are also collected and their reason to regard such subjects as the most enjoyable are also discussed. Such qualitative methods and datas are used to verify the reliability of the results in the quantitative methods.

3.1 Setting the Research Standard

The first standard that I will use in the research is to setup the procedure to determine the study appropriate for the research question. The followings are the standards to interpret students' behaviour and academic performance to find out their perception.

(1) To perform the activities of the interpretive research forming research questions, making sense of field work experiences and writing the research report are framed by a constructivist knowledge.
(2) To sustain and resolve preplexity
(3) To do communicative relationships with others while trying to understand their understandings
(4) To engage in critical self- reflective thinking about the quality of the knowledge construction process.

3.1.1   Determination of appropriate research question

To determine whether the study appropriate to research questions and to connect the research questions to empirical procedures and to data, the following questions and standard will be applied.

- *What evidence would be appropriate to collect information on students' learning, perception, attitude and deterioration of behavior in science and mathematics class duration transition period?*

- *Would the evidence that I plan to collect provide me with a basis for making a judgement about worthwhileness of occurrence of student's behavior?*

- *What teaching strategies can assist to improve students' attitude and behaviour and how should I apply?*

- *What would I expect my evidence to tell me? The fact that I expect consists of the improvement in students' homework, assignment , application, examination and assessment tasks and s it will allow me to take a critical look at what goes on and especially how classroom climate is like.*

*To apply the reliable information about the ethnic background of the students and select ethnic minority students for the study. The direction is made on their behavioural and perception issue and other unrelated facts will be eliminated.

3.1.2   Assessing the strategies

The use of action research method is appropriate to the study. As it is intended to conduct the research in school and classroom environment, action research possesses the democratic form. Systematic reflection and action to some aspects of practice is to be performed. The following are the standard to assess the strategies whether they are appropriate to inquiry or not.

(1)To assess whether the critical understanding of work is obtained, whether the critical reflection and critical interpretation on the evidence of others' work is made, whether the critical interpretation on the effectiveness of teaching strategies on students' behaviour is made.

(2)To aim at feasibility study on techniques which got appropriate evidence and are easy to analyze or interpret as well as they points to action by monitoring over time. (3) To allocate enough time to collect evidence and availability of resources as well as physical requirements such as personal reflection and regular way of working.

(4)To consider the validity and contribution of the research perspectives. That will involve generalizability, predictability, controllability, explanability on variences and achievement of meaningful understanding.

3.1.3 Collecting and analyzing empirical materials

In my action research on how appropriate teaching strategies can improve ethnic minority students' perception on learning environment. Combination of quantitative and qualitative approaches are applied. In application of quantitative research method, I determine enough level of deductive testing of theories in deteoriation of students' perception which was caused by change of learning environment. In application of quantitative research method, I determine enough level of deductive testing of theories in deteoriation of

students' perception which was caused by change of learning environment. In application of qualitative research method, the following tasks are to be performed.

(1)To assess whether the students possess better attitude when the teacher takes care of individual ethnic minority students and provides assistance to their needs and interest.
The design of the project gives the overall framework for the empirical procedures showing what they are and how they fit together Thus-
(2)Action research is to be reported in details and that it fits with the study's research questions.
(3)To determine the steps of the research project be quantitative , qualitative or both.
(4)To do Reflection and collecting evidence by going backwards and forwards.
(5)To study improvement in behaviorism of students by applying appropriate teaching strategies. The reflection points are effectiveness of teaching strategies on students' behavior, students' participation, attitude, cohesiveness, satisfaction and understanding.
(6)To monitor the interaction between teacher and students and to help each other to change. Negotiation and preparation are required prior to planned change.

(7)To do reflection on how the data can be acquired, how the data relate to students' behavior, how the data are appropriate to actual situation are the reflection points.
(8)To do deductive testing of theories in deterioration of students' perception which was caused by school level environment and that for applying qualitative research method.

(9) A newly developed teaching is to be tested against the outcomes such as students' attitude, noise level in the class, number of incidents in class etc.

(10)To collect and analyze necessary data and to perform generalization through sampling.

(11)To determine which method is applicable, the following questions are applied.
- Should I take a quantitative approach to the topic or qualitative approach?
- What, exactly am I trying to find out ? . In this situation, there is very likely to be interaction between the questions and the methods. The method established earlier , where content and research questions come first and methods come later is valuable as a guiding principle.

3.1.4 Evaluation the procedure to determine the data collection instrument appropriate to research question

The appropriate standards are required to set up to achieve the good quality data in quantitative studies. As the quality of data depends on quality of measuring instrument, appropriate standard are required to assess the measuring instruments. In the qualitative research procedure, the standards are required to set for applying interview schedules.

(1)To setup the standard for verifying and checking data. Data are collected by arranging interviews with students, with other teachers, with parents and also by searching students'

performance records. Check lists are applied to resources, interactions, skills , classroom practice and facts in students' records and portfolios of students' works.

(2)To study teachers' plans and programs of key documents such as journals written by teachers on students' behaviour, logs of meetings of visits.

(3)The evidences are assessed in the aspect of appropriateness, authenticity and validity. To determine the validity, cross checking, interpretation, feeding data back to participants for reflective consideration, checking for face validity, giving data to some other people to see if they interpret it in the same way and may be asked the respondents to comment upon the data and interpretation. To increase the validity, trigulation method is applied. As data are collected from various data sources such as students, staffs , school administration , it is necessary to use multiple methods and sources of data in execution of study in order to withstand critique by colleagues.

(4)Qualitative research method is used to help conceptualize the studies ,surveys are conducted to corroborate observational data. Research and evaluation will be improved by trigulation which is a strategy for improving the validity of research of evaluation, findings and strategy that will aid in elimination of bias and allow the dismissal of plausible rival explanations.

(5)The survey procedure which investigates the deterioration of students' behavior in transition period of changing from rural border school to schools in cities consists of the questionnaires to determine leadership behavior, helpful friendly behavior, understanding behavior, students' responsibility and freedom behavior, admonishing behavior, dissatisfied behavior, strict behavior and uncertain behavior. The questionnaires are designed to collect the data relevant to the above aspects and interviews are aimed to determine the reliability of data.

(6)The process which is the survey procedure to investigate the effectiveness of teaching method and curricula on students' behavior consists of the questionnaires to determine the effectiveness of appropriate lesson plan, effective activities designed to develop students' science and mathematics knowledge, skills with understanding and change of attitude. The data collected from such procedures can not be completed in one or two days. It needs to observe and collect the data for a specified period. Assessment of students' ability, interviews to judge the effectiveness of methodologies and students' appreciation on the teaching strategies are arranged.

(7)The quantitative data analysis applied for question (1) is done straightforward, made statistical tests and drawn conclusion. Case study approach, interpretation, and developing explanation are included in quantitative data analysis for question (1). But investigating the students' outcome in the aspect of their perception and behavior when applying appropriate teaching strategies requires qualitative research method because it can be used to get the insider's perspective.

3.1.5 Application of sampling procedure

In the research process, sampling procedure is also applied to check the sample collected field works and observations which are appropriate to research questions, predictive outcome and research objectives.

For any empirical study, the logic of the sample should be congruent with the overall logic of the study and of the research questions. The sample needs to be properly described and the basis for its selection made clear. In a quantitative study, the size and structure of the sample need to be described along with its logic, its method of selection and the claims made for its representation.

The validity of data is to be concerned in three main forms of quantitative validation, content, criterion- related and construct validity.. Qualitative data are validated through the use of check coding and by following the audit trail through the analysis.

Findings and conclusions reached in the research

In this step, I will apply the following questions.

(1) Have the research questions been answered?
(2) How much confidence can we have in the answers put forward?
(3) What can be concluded from the research on the basis of what was found ?
External validity

External validity is the question of generalizability. The followings are to be considered whether external validity is achieved or not.
In the processes, peer debriefing and triangulation are to be made to check the validity of data. Regarding the confirmability, it needs to determine its acceptability, dependability of inquiry and examine the product including data, findings, interpretations and recommendation. If there is internally coherent, the bottom line may be accepted.

The methods that establish credibility, transferability, dependability and confirmability are also applied. Reflective journal, daily schedule, personal diary and methodological log which consists of methodological decisions and accompanying rationales are also utilized to get assistance for achieving credibility of facts and data

3.1.6   Setting standard to determine the strength and weakness of the method

3.1.6.1 Major strengths of the research methods in the context of the problem

The context of the problem that I intend to examine possesses complexity of social phenomena. Because the students' behavior are different and are also influenced by

social economic background, school level environment, teaching strategies utilized by teachers, application of educational approaches and perception on teachers. They have holism and richness. This application of qualitative method is well able to deal with the complexity of such social phenomena because the qualitative method provides descriptions and with grounded theory, it is well suited to investigating process. As qualitative method possesses the strength of more flexibility, they are well suited for studying naturally occurring real life situations. Qualitative methods are the best way to get the insider's perspective, the ' actors' definition of the situation.

Bringing quantitative and qualitative methods together is provided to meet the situation to apply the strength of the two approaches and to compensate for the weakness of each approach at the same time, the specific reasons for combining the approaches should be considered in particular situations in the light of the practical circumstances and contexts of the research.

Together with qualitative and quantitative methods, action research method is also applied. The action research has the strength in real improvement of practice by practitioner. That is grounded in improved understanding and rational improvement. Before individual professional practice can be improved, improvements need to take place in the situation, the context or the environment in which the practice is occurring.

Process of investigating and inquiry consists of the process in which I will have to do a lot of discussion with my colleagues, school administrators, mentors with a passion for improvement taking risks and assessing what happens when they initiate changes. This often involves a great deal of arguments and debates. It is only possible in situations where there is trust. To do work necessary, to principles of equality and freedom, high levels of commitments are also required. Critical reflection and alternative interpretations will not be possible where people do not feel free to speak. All opinions and interpretations need to be valued equally for real improvement to occur. The only basis upon which an interpretation or an opinion is to be accepted or rejected on the basis of rational discussion of the evidence, position and power bring no privilege in action research.

As my project focus on students' perception and behavioral improvement, the students are the major participants in the research. As the opinion in the research is focussed on the students that are not based on authority. The strength of action research that does not give privilege to position and power but does give privileges to rational discussion is very well appropriate to my focus in my educational research project.

In my action research, quantitative and qualitative methods are applied to utilize their strengths. Quantitative data enable standardized objective comparisons to be made and the measurements of quantitative research permits overall descriptions of situations or phenomena in a systematic and comparable way. Procedures for the analysis of quantitative data, being well developed and codified, bring objectivity to research in the

sense that they increase the chances and the results of analysis do not depend on the researcher doing the analysis. The quantitative approach means that certain types of important questions can be systematically answered, opening the way to the development of usual knowledge.

3.1.6.2 Major limitations of the research methods in the context of the problem

In use of the action research method, the major limitations are:

(1) The behavior problems are related to a great deal of socio-economic and academic problem as well as changing of school level environment , only some factors that are common to the majority of students can be targeted in action research.

(2) There are limitations on willingness, availability of time for participants.

 To use quantitative and qualitative methods, neither approach is always superior to the other. Each approach has its strength and weakness thus total reliance in one particular method is not appropriate.
The decision about methods can be governed by the research context. For example, collecting the data on students' achievement by applying quantitative method in the test cannot even show the point that misbehavior students ever get the lower marks than good behavior students because the students who possess good academic capability are penalized for their misbehavior many times. More detailed approach involving more specific questions that reflect their psychological perception and attitudes are required.

Sometimes it is not clear what the research questions are in advance of the research or it is not appropriate to try to establish those firmly during the planning stage. Then, the specific focus and research questions emerge during the inquiry rather than a head of it. If it happens , it also have the limitation on availability of appropriate time to determine relevant question that can draw out the appropriate data.

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3.1.7   Setting standard for interaction with students

The following questions are planned to integrate the ethnic minority students' perception and their learning in science and mathematics classes during their school years.

Leadership Behavior	Can I properly lead, organize, give order, set tasks, determine procedure, structure the classroom situation, explain and hold the attention of my students?
Helpful/ friendly	How well can I assist, show interests, join, behave in a friendly or

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behavior	considerate manner, be able to make a joke, inspire confidence and trust?
Understanding behavior	How well can I listen with interest, emphasize, show confidence and understanding, accept apologies, look for ways to settle differences, be patient and open to the students?
Students' responsibility and freedom behavior	How well can I give the opportunity for independent work, wait for class to let off , steam, give freedom and responsibility to students?
Admonishing behavior	How many time do the students make me to get anger and cause me irritation and how many time do I forbid, correct and punish them?
Dissatisfied behavior	How do the students show dissatisfaction, wait for silence, criticize and keep quiet?
Strict behavior	How well can I keep reins tight, check, judge, get class silent, maintain silent, be strict, exact norms and set rules?
Uncertain behavior	How does students' performance deteriorate in their learning and achieve less on objective?

The qualitative data consisted of students' descriptions and comments in response to set range of open questions regarding perception of the class environment and their behavior in the transition period are to be arranged.

The classroom climate in mathematics and science class is to be improved by making a pleasant stimulating atmosphere and providing the lessons which are liked by them. It is more important to reward students for their efforts and the things that they do well than it is to correct their mistakes. Active class level and interpersonal teacher behavior is an important factor related to students' outcome. To improve students' outcome, the instruction of new curriculum that suits their interests and needs has to be accompanied by appropriate teacher's effort to improve their behavior.

The study is to be made on how students' behavior are to be improved by performing the following tasks by teacher
(1) Planning a unit of work that takes into account the needs, interests and abilities of students.
(2) Detail of lesson plans.
(3) Addressing the developmental aspect of subject matter.
(4) Use of effective activities designed to develop students' mathematics knowledge/ skills with understanding.
(5) Effective record keeping
(6) Use of assessment priorities that looks beyond what the students can obtain the answer.
(7) Use information about students' misconceptions to guide future planning.
(8) Provide sufficient opportunity to practice their skill.

In action research project, data are to be collected from students before applying appropriate learning strategies that promote classroom environment and after applying such learning strategies. The data will cover the range of questionnaires in the aspects of satisfaction, friction, difficulty, cohesiveness, competitiveness , leadership, helpful/ friendly, understanding, students responsibility, freedom, uncertainty, dissatisfaction, admonishing and strictness.

In the research project, planning is to be done. Planning arises out of reflection and occurs on the basis of evidence about what has been occurring. In the case, the occurrence of behavior problem and significant change of behavior due to application of appropriate teaching strategies are reflection points. As they change from rural schooling to cities schooling, their past experience and behavior in rural schooling resists the new environment and their new learning experience in cities schooling.

The research action involves monitoring the interaction between teacher and students and all begin helping each other to change. Negotiation and preparation are required prior to planned change.The application of research method and addressing the problem and research question consists of carefully planned actions and tasks which are carried out so that the desired improvement in students' behavior will occur. It needs evidence of what occurs in order to have a rational basis for making judgement on what happened as well as providing basis for further planning.

Reflection provides a basis for planning the next phase of action. My reflection on how I can get the data, how the data relate to students' behavior and how the data are appropriate to actual situation are the reflection points.

Reflections are made on justifiable judgement and hidden assumption and value. The reflection allows me to make judgement on the basis of perpetuating action that supports and reinforces these values. Critical reflection involves questions such as how would I organize reflection upon the evidence that I imagined above. Who would be involved? What might this reflection tell me?

3.1.8   Setting standard to find the reasons for differences occur when two research procedures are applied

The differences between two procedures are caused by the nature of survey procedures. Quantitative method is applied to investigate the deterioration of students' behavior in transition period of changing from rural to cities school because such data can be collected by using questionnaires for " What is happening in this class"," Questionnaire on teacher interaction"," My Class Inventory" .This natured data to be collected are standardized size, objective comparison can be achieved and it possesses overall description of situation because the deterioration of learning can be surveyed by asking appropriate questions.

But the survey procedure applied for the questions " How appropriate teaching method and curricula can improve their behavior in transition period is qualitative method ?.The effectiveness of teaching strategy cannot be known unless a significant and long time is taken for observation.

Assessing students' understanding perception and change of attitude due to appropriate teaching strategies requires flexible and different approaches. The nature of the data are holism and richness. They are also flexible. The use of procedure requires more flexibility to be appropriate to wider range of situations and wider range of purposes. As the nature of research context is different , the difference can be recorded.

	Procedure (1) Method for examining students' behavior during transition period	Procedure (2) Survey method for examining effectiveness of teaching strategy	Reason
Method	Quantitative	Qualitative	Difference between standardized size of data procedures. In procedure (1), data are standardized but in (2), they are not .
Time table	Short time	Long time	Procedure (1) can be completed by making appropriate questions and ask students to fill in the question sheet. Procedure (2) can only be completed by making long time observation
Approach	Systematic and comparable way	Flexible approach	Procedure (1) requires well developed, codified and objectivity to research. Important question can be systematically answered. Procedure (2) requires holism and richness of data which can be applied in flexible approach.
Data source	One	More than	Triangulation

			method for procedure (1) to validate data

In procedure (2), assessing how appropriate teaching method and curricula can improve students' behavior in transition period requires prolonged engagement, persistent observation and triangulation .

Especially in procedure (1), there are always prior formulation as attested to by the fact that it is always possible to write out a head of time what one expects to find there. This possibility also provides the basis for a test. If the investigator produces field notes and makes interpretation that are continuously predictable from the original formulation then that investigator has either not spent enough time on site or has persisted against all logic in ethnocentric postures. In procedure (1), as it involves providing the questionnaires that are biased to the standard methods, the data and information obtained are to be confirmed with interviews and one to one questionnaires are also to be provided for students. Especially in procedure (1), the concept of triangulation by different methods can be achieved by using different data collection made (interview, questionnaires, observation, testing).

The procedure (2) requires the prolonged engagement and opportunity to build trust . It is also a significant cause to occur those differences. All of the outcomes of triangulation, convergent, inconsistent and contradictory need to be filtered through knowledge gained from the immediate data Thus, both data and field notes obtained from both classes are to be verified whether they are consistent or converged.

3.1.9   Implementation of two procedures

How do two procedures complement each other?

The quantitative method used for procedure (1) and the qualitative method used for procedure (2) are complemented. Depending on situations, adding one approach on to the other, interviewing the two approaches, integrating two approaches and linking two approaches are to be done. The effectiveness of teaching strategies is observed by applying quantitative questionnaires for investigating students' opinion and by making qualitative interview questions. Depending on students' willingness to answer correct answer and their willingness to participate, adding, integrating or linking two approaches are to be done.

3.1.9.1 Procedure conducts first for analysis

To analyze data, firstly, I follow quantitative procedure by providing questionnaires to determine students' understanding, attitude which are indicators for their behaviors. I provide the questionnaires for " What Is Happening in This Class", " My Class

Inventory" etc. Then I analyze the data and determine the facts on how their learning perception and attitude deteriorate. Such collection of data by applying quantitative method was repeated again after students learnt the study. Reflective journal, daily schedules, personal diary and methodological log are applied in the study.

3.1.9.2 Application of procedures to collect data and conduct interview

The question " How students' behavior deteriorates in transition period of changing from rural school to cities school" is investigated by using questionnaires to collect data and the another question " How appropriate teaching method and curricula can improve their behavior in transition period ? " is investigated by generating interview information. There are different procedures that are more appropriate to use to address my questions. I applied empirical procedures which mean the design of study and the tools and techniques which are used for data collection and analysis. The following questions are first planned before conduct the study.

(1) Are the design, data collection and data analysis procedures reported in sufficient details to enable to be scrutinized and reconstructed?
(2) Is the design of study appropriate for the research question?
(3)Are the data collection instruments and procedures adequate and appropriate for the research question?
(4) Are data analysis procedures adequate and appropriate for the research questions?

For the question " Are the design, data collection and data analysis procedures reported in sufficient details to enable the research to be scrutinized and reconstructed? , the disciplined inquiry stresses that the research needs to be conducted and reported in such a way that all stages of it can be thoroughly examined. Therefore, I need to follow the full sequence of steps and each step should be described in sufficient details to enable the audit trail through the study to be followed.

4 . 0 Data Sources and Role of Participants

The data collection is done in the school where ethnic minority students are attending in Yangon, Mandalay and Pyi. 1000 ethnic minority students are attending the vocational school in Yangon., Mandalay and Pyi.

My survey especially emphasizes in the difference between the perception of students in education before and after implementation of new teaching strategies that are relevant to their background and culture.

Particulars of the vocational students who are attending the classes in cities.

The sample is taken for 100 ethnic minority students.The summary of their particulars are summarized as follows.

Number of students	Ethnic Background	Place where they come from	Past educational background	Past socio economic background	Current course they attend
15	Wa	Mai La (Eastern Shan State)	8 Years Schooling	Growing poppy	Agriculture Irrigation Construction
10	Wa	Pan San (Eastern Shan State)	6 years schooling	Served in United Was State Army	Auto Meacanic & Mechanical Course
15	Shan	Ho Mong (Eastern Shan State)	5 years schooling	Served in Mong Tai Army led by Khun Sa	Agriculture
10	Wa	Loi Mwe (Eastern Shan State)	9 years schooling	Growing poppy	Basic Electrical Trade
20	Mixed Shan & Chinese	Ho Mong (Eastern Shan State)	9 years schooling	Son/Daughter of MTA officials	Engineering
15	Shan	Mong Tot (Eastern Shan State)	7 Years schooling	Son/ daughter of United Wa State Army	Marketing/ Trade
15	Shan	Mong Hta (Eastern Shan State)	4 years schooling	The sons and daughters of the parents who were killed in battles	Basic Secondary schooling together with vocational study in construction/fitting/ agriculture

<u>Determination of the source of data</u>

The source of data is firstly determined in the community school attended by the ethnic minority students. The data are collected with the help of school co-ordinator.
The data for vocational education students are obtained from the community and social affairs groups. The respective group leaders are approached and with their permission, their group members are requested to provide the data. Some of the datas are acquired through telephone interviews.

As the ethnic community associations are the places where most of the ethnic minority people meet together, placing the notices at the place where they organize regarding the survey work greatly assisted in the data collection process of the project.

The data source for ethnic minority student largely depends on the contact with the community and social groups in their community. Most of my records are obtained from the leaders of their community. The method which I applied to collect the datas through the community group leaders is a reliable and appropriate method.

Role of Participants

In the research action project, I acted as a co-ordinator of the activities which included interviewing with the students, their parents, community leaders and tutors who taught the students in ethnic community school. Some tutors and teachers are ethnic majority people. Some are voluntary tutors from ethnic minority community in cities. 5 Methodologies are applied in the project to make the assessment in different perspectives, to produce the clear understanding on the perception and to determine the factors that influence on ethnic minority students' learning environment in cities.

4.1 <u>The Role of Participants in application of Methodology (1) What Is Happening In This Class</u>

What Is Happening In This Class is applied to assess the classroom environment which is influenced by social cultural factors. As the student are in the transition from their own culture to culture of Bama who is ethnic majority in Myanmar (Burma), detailed study on both cultures was made.

Regarding their culture, the appropriate reading on religion, culture and social systems were made by me . In this study, I performed the library study as well as discussion with cultural group and Director of Education Department, Director of The Department for Border Development and Lecturers from Institute of Education (Yangon) and University of Ethnic Development, U Myint Aung of University of Yangon and those from the Ethnic Minority Cultural Society are also collected. Those collection reflects the learning environment in their cities classrooms. The participants of my interviews provided me the facts related to the ethnic minority culture which influenced on ethnic minority students ' learning in ethnic minority's cultural environment. The information on the civilization of mankind, spiritual culture and physical culture plays an important role in ethnic minority's tradition.

To be regarded as civilized and good matured people, Burmese comprising ethnic majority and ethnic minority people have to obey the teachings of parents, their first and foremost mentors since the day they were born. As most of the Burmese are Buddhists, they obey Buddha's

preaching. Buddha's preaching are propagated by sanghas. They lead Burmese for physical and mental well beings by Susanna.

Ethnic minority children are taught their own traditional culture in border region, when they will have to live for long time in cities, a weak environment to preserve their traditional culture and social system is faced by them. The role of the community cultural organization is to provide the guidance to establish a relationship of mutual respect with the people from other culture so that the loyalty to union, acceptance of the national social system and mutual respect will be promoted.

As a teacher plays the important role in guiding the children to become good citizens with well being moral and disciplined social behavior, their good perception on their teachers of different cultures is important for them to develop their ambition, career prospect and attitude for serving for the benefit of the country. By assessing how they perceive, what is their wish for a ideal teacher, what kind of classroom environment they expect and how their expectation and actual situation difference and how we can adjust such differences are the important reasons to participate in the project work.

Thus the role of the participants in ethnic minority community provides the information related to past and current social economic condition of the minority people. Their view on the cultural aspect of ethnic minority students' living and studying in cities., their wish of how to maintain and preserve their own culture by their kids in cities. The leaders of ethnic minority community also participate in the interview with me. The interview notes reflect their views, wishes and understanding the objective of the research action project.

I also prepared the questionnaires that guide the course of the interview to achieve the objectives and that asks the students to reflect their classroom environment are also prepared. The quantitative method of answering the questions which are referred from WIHIC method and are modified by me to be appropriate to ethnic minority community is added to the qualitative method of interviews and study.

Ethnic minority community leaders provide the help to collect the datas from their students and to provide the information related to cultural aspect of ethnic minority community.

Regarding school environment in cities, the information on education in cities is collected from Department of Education..

According to interview, references and discussion with the respective Education authorities and community educators highlights the point that the educational environment in cities is not only to teach the students academic study and knowledge but also to make them effective learners and ultimate responsible citizens by preserving own cultural and traditional background.

Thus the role of the participants from educator side provides the outline on how to assess the students' perception on teachers and classroom environment in cities to meet the educational objective of Government, school education system and that of ethnic minority community.

Apart from school education, I also approached the community workers and Department of Ethnic and Border Development's Community Assistance program. They also play the key role to

provide the information related to classroom environment in Adult Education and Vocational Education.I also collected the information related to cultural aspect of learning environment in Adult Education in Myanmar from library of Institute of Education. The information highlights that culture signifies basically the design for living that a group of people inherits and modifies over time as other changes occur. The sum total of our ways of living is built up by a group of human beings and it is transmitted from one generation to another. (Macquire dictionary).The sum total of the attainments and learned behavior pattern of any specific period, race of people (Frank and Wagnalls). When culture is defined at a specific description is in fact to fossilize that culture.

This approach fails to acknowledge and accommodate the inevitable process of change and how this effects culture. Culture does not equal nationality, rather culture relates the ethnicity of the person. Within each culture, there are naturally individual difference and variations often based on gender, social class, educational and whether rural or urban dwellers among other differences.

While knowledge of another person's culture can make for better communication and can suggest possible explanation for his/her behaviors. It is not a short cut method to understanding that a person nor will it necessarily provides the only or right explanation (Home Service of NSW - Multicultural Resource Manual).

The bridging programs for ethnic minority people to continue their study in vocational education plays the key role of providing the strategies to provide the cultural competency to the adult students who are attending the vocational education classes and tertiary education classes in cities.

My strategy to assess the individual participant of ethnic minority students is to determine how the factors influence on their perception in adult education classroom and teachers as well as learning environment which is designed to provide not only vocational skills but also cultural competency which is defined by Walker (1991) that the ability of individual to see beyond the boundaries of their own cultural interpretations to be able to maintain the objectivity when faced with individual from the cultures different from their own and be able to interpret and understand the behaviors and interactions of people from other cultures without bias.

The questionnaires and interview plans are prepared by me to get the data from the school students and adults education students from ethnic minority community. The relevant information to conduct the research action project to explore how ethnic minority community students percept the classroom philosophies of school education and adult vocational education are collected from both community educators and students. The encouragement, acceptance and taking responsibility were well received by me from them to successful completion of the research action project.

The community   leaders and parents of the students also provide the ideas on the collected results. In the community meeting, I present such results and datas to determine the fact on how ethnic minority community organizations can assist their members in education and how the role of volunteer community tutors can set up more effective strategies to assist ethnic minority students who are attending the classes in cities to gain the cultural competency as well as to acquire the effective way of learning.

4.2 The Role of Participants in application of Methodology (2) Questionnaire on Teacher Interaction method

Questionnaire on Teacher Interaction method is also applied to focus on the nature and quality of interpersonal relationship between teacher and students. The interviews and discussion are made with the teachers and tutors who teach ethnic minority students on how they percept on the students classroom environment.

In discussion with teachers, the teachers explain their experience in communication with ethnic minority students who are knowledgeable with respect to a given domain of learning, evaluating their ability to apply a principle consistently in a variety of contexts, their ability to carry out a process or procedure in such a way as to obtain consistently the desired results, the feeling or subjective confidence that one understands a principle or relationship and the ability to draw analogies that are considered as appropriate by people who are pressured to be knowledgeable with respect to the domain.

The teachers also express their opinions that good performance on course examination alone can not be assured as a reliable indication of the type of understanding. Apart from reviewing students' achievements in text examination, their ability to deal with non prototypal situation is also important for teacher to ensure so that the students will reach deeper understanding of domain than does the ability to deal with prototypal situation.

I also discuss with them in effectiveness of the teaching strategies to provide the good classroom climate with ethnic minority students who came from different cultural background. The questionnaires are also prepared for teachers to collect the datas which show how students' perception change after applying teaching strategies for developing students' ability to deal with non prototypal situation and how their perception on teacher improves overcoming language and cultural different barriers.

I also made the discussion/ interview with the students. My emphasis is put on knowing that (Which is rote learning or factual knowledge), knowing how (Which is instrumental but procedural knowledge) and knowing why (Which is relational understanding with conceptual knowledge).

If ethnic minority students achieve the ability to combine all knowing that, knowing how and knowing why, they achieve the formal understanding. The facts to create the formal understanding in the classroom environment different from their own culture and their past experience in their community classrooms, how teacher's strategies can overcome the barrier of language and cultural difference and how their interaction with the students can provide the positive effect on their development of understanding in the lesson are also acquired through the interviews with the students.

Their opinions on how teacher should interact with them are also collected from them. The role of the students who participate in the research action project provides the information on how teacher's methodologies to make them like the lesson and improve their achievement in their studies. The parents of the students also provide their opinion on classroom environment and their wish on how their kids education is improved and how they can share the responsibilities to improve the education.

In application of Questionnaires on Teacher Interaction method, the role of the participants can clearly provide the information related to determination of effect and impact on the classroom climate of the students from different cultural background by teacher's interaction with students.

4.3 The Role of participants in application of Methodology (3) Constructivist Learning Environment Survey

Constructivist Learning Environment Survey is used for assessing the condition to provide the meaningful learning of Burmese students in culturally different cities classrooms.

NOVAK (1978) presented the learning theories of Ausubel and Piagets in the aspect of difference between meaningful learning and rote learning, progressive differentiation and superordinate learning. NOVAK emphasizes in the key concepts of Ausubel's assimilation theory of learning. The meaningful learning can be achieved by doing the conscious effort on the part of the learner to relate new knowledge in a substantive non arbitrary way to relevant concepts or propositions in the learners' cognitive structure.

As the teachers who are teaching ethnic minority students have to provide the meaningful learning to ethnic minority students from the different culture, the interview with the teachers focuses on how their teaching strategies are developed by going through pre- lesson interview with ethnic minority students to know their backgrounds can improve the way to achieve the meaningful learning by comparing with the way in which they do not try to acquire the background of the students.

In the interview with the students, the students also play the role as the commentators on how teacher's understanding on their past educational backgrounds and educational knowledge can enable them to link new lessons in different cultural condition with their knowledge in the cognitive structure which was developed under the influence of their past experience on cultural environment in their birth place.

I also made the discussion with adult students in how teacher's action of effective link with their residual knowledge which they have once acquired during their school days in their birth place long time age to new knowledge in the study in cities in the different cultural environment.

4.4 The Role of participants in application of Methodology (4) My Class Inventory Method

My Class Inventory Method is applied to examine the fact on how Burmese students' attitude deteoriated during the transition period of changing from their community educational and cultural system to cities educational and cultural system.

From the intensive interview with ethnic minority students of different ages and different backgrounds, all of them commonly play the key role of providing the information of how they are nervous, and excitation happened when they left for cities from their birth place, how they are confused on arrival in cities but still happy then how they faced with the difficulties in the new system which causes them even the simplest thing seems difficult and their problem in absorbing the tutorials, how they lose their confidence, self esteem and become helplessness, then how they can adjust themselves to understand the system and custom and how they can finally understand the majority people way of life and they can absorb the more study build up in them to achieve the qualifications.

In the interview with both students and teachers and by examining their questionnaires, they provide the information on how teacher's ability to assist them to adjust the new system can play the key role in promotion of their learning, classroom climate and their perception.

4.5 The Role of participants in application of Methodology (5) Individualized Classroom Environment Questionnaires (ICEQ) and Classroom Environment Scale (CES)

Individualized Classroom Environment Questionnaires (ICEQ) and Classroom Environment Scale (CES) are used to assess the Burmese students' perception of different teachers. One possesses the good knowledge in the cultural difference and the other does not.

The teachers are also discussed for providing the classroom environment to the students. As well as qualitative method which consists of interview questionnaires, quantitative method of providing the questionnaires are also included in the research action project.

The study

1. To study how the length of stay in cities and cultural competency affect the classroom Environment. WIHIC method is used. To study how their age and cultural competency affects the interpersonal relationship of teachers.

2. Questionnaires on Teacher Interaction method is used to determine to examine their class room teaching and learning situation.

3. To study how meaningful learning can be provided to ethnic minority students of culturally difference and different age in cities classroom. Constructivist Learning Environment Survey method is used.

4. To study the attitudes of ethnic minority students during the transition period of changing from community classroom to cities classroom with different culture. My Class Inventory method is used.

5. To study ethnic minority students' perception on teachers with different understanding in cultural difference. Individualized Classroom Environment Questionnaires (ICEQ) and Classroom Environment scale (CES) methods are used. The observation is done for two conditions. One is for their study with a teacher who possesses the good understanding in the cultural difference and the other is for their study with a teacher who possesses the limited understanding in the cultural difference.

5.0 Implementing New Strategies and New Teaching Curriculums

5.1 Old teaching strategies

In cities classrooms, usual teaching method is teacher centered teaching method. Teacher explained the students in front of classroom, explain the whole class, gives the notes and provides the exercises. Then ask the whole class for further questions. The students' learning is assessed. Such teacher centered teaching method is inappropriate to ethnic minority students because the ethnic minority students lack the appropriate academic background . The language and cultural difference also prevents ethnic minority students to raise the questions, to tell about their difficulties and to participate in class activities. The ethnic minority students also feel that they are not motivated, not encouraged and not understood by teacher. Their perception on the course is studied and data are collected.

The old curriculum does not provide appropriate learning for the ethnic minority students. Thus they are left behind other students in academic performance and abilities. The examination and assessment and evaluation results show such facts. Teaching strategies and curriculum are to be designed as special curriculums for ethnic minority students.

5.2 New teaching strategies

The ethnic minority students possess weak academic background. They did not learn enough basic academic study like the students in the capital cities. But the ethnic minority students possess the life experience for their survival at the least developed place. They also possesses the life experience in doing works in the fields to get the earnings for their living. Thus the design of curriculum and teaching strategies are to be based on their life experience and background. Highlighting the facts how the lessons and study can contribute something for their living and fields work will assist teacher to motivate them to absorb in study and to provide them meaningful learning.

For example, in general science subject, the topics " Water Resources" is included. How the water is important in daily life and agriculture, water resources in the country and how to preserve the water resources are included. For the ethnic minority students, special discussion with them how their agricultural products are provided water, how water is acquired in their places are to be made. Then their idea on how to store the water, how to build the dams and effect of enough water supply in their places are to be discussed. Then technical topics related to water purity, dam construction and rural water supply system are to be taught. By this way , their conception in learning science is improved. In learning mathematics, the calculation related to their society is to be developed.

Novak (1978) presents the facts related to research on science learning. According to Novak's (1978) presentation, it is understood that learning science is related to student and teacher's conceptions of science contents, the nature of science conceptions, the aims of science instruction, the purpose of particular learning process. Transfer of fabricated knowledge is then stored in the memory. Science is primarily learned as an accumulated facts.

Druit and Treagust (1998) presents the fact related to the frame work for categorising research on science learning. In concept learning, the students used to explain the scientific phenomena and students topic related to understanding of scientific concepts. In developmental learning, the learner has to view more globally than the concept learning perspective. In differential learning, the individual student has to interact the differences within instruction depending on individual difference in abilities and aptitudes. In problem solving, the individual employs the studies of the process or procedure to answer the scientific questions.

Druit and Treagust (1998) also state that domain specific instructional knowledge is applied in determining the learning and problem solving in research in all science domains. Learning science is only successful if learning pathways are designed to lead from certain facts of pre-instructional knowledge towards the science perspective.

The incorporated issues such as students' interest, motivation, self concept, classroom climate, power structure in school and social constructivist's view of learning appear to be suited also to guiding the thinking about science education beyond the aim of making science teaching and learning more effective learning science through models and modelling learning about science teaching are also essential areas for more effective science learning.

In practical application, I prepare the writing in science which is more personal to the students, I will also be aware of cultural factors affecting students' learning in science and learning science through models and modelling can and do contribute to learning in classroom and other contexts. In learning about science teaching, particular emphasis is put in constructivist's view of learning in developing approaches and materials for teaching particular concepts.

Together with science and mathematics teaching and learning, individualized tutoring, providing each student's needs and providing cultural facts are also implemented in the ethnic minority students' class. In teaching, the educational theories to center on students' development ideas are referred. I use the canonical approach which focus on the knowledge, skills, habit of mind of literature, individuals and socio-cultural approach which focus on language, values, personal identity and other factors that affect on individual participation in the activities of a community.

I especially make my focus for students ' attention- interpersonal relationships, scientific activities and task requirements as these factors subvert the scientific intention for a group activity.

In line with these approaches, I provide the notes on the topic of the lesson and demonstration that comprises of pictures and teaching aids to the students. The students are led to group discussion . They will have to take part in the groups comprising ethnic minority and ethnic majority groups. The ethnic minority students are encouraged to co-operate with the other students. By this way learning difficulties, impacts of cultural differences and anxiety are gradually reduced.

As studying science provides true knowledge about the natural world, scientific concepts and theories are conceptual tools for describing, explaining and sometime controlling the natural world, the students should be guided to achieve in such focus.

To improve science understanding by students, I plan teacher's response to students' comments during class discussions in line with conceptual change research which provides a set of intellectual tools that improve teacher's ability to respond appropriately to the students.

In such a way , I recognize the importance of talking to the students about their knowledge and understanding both as teaching strategy and as a strategy for curriculum development. I emphasize qualitative understanding as a necessary, precursor to the development of abstract mathematical model, distinguish clearly between content coverage and actual students' understanding of scientific ideas, recognize the need for substantial reduction in content coverage and vocabulary load in most science courses and use research results to help the students' construction of canonical scientific knowledge by modifying their prior knowledge.

Apart from conceptual and canonical approaches, sociocultural perspective on scientific literacy is also considered in learning to use language, thinking and acting in ways that identify one as a member of community of scientifically literate people and enabling one to participate fully in the activities of community. Sociocultural approach is applied to enable learners to participate in classroom communities and classroom discourse resembles.

Interpersonal relationships among students and between them and teachers, scientific activity and task structure and accountability systems are emphasised to get students' attention. I also recognize that talking to students about their knowledge and understanding is important. By emphasising qualitative understanding, distinguishing clearly between content coverage, actual students coverage and vocabulary load in most science courses, and using research results to help students construct canonical scientific knowledge by modifying their knowledge. I tried to improve their scientific literacy as well as taking full account on socio-cultural factors.

In planning, the activities for the students, I develop activities and resources that afford opportunities for engagement to a wider range of students, develop a richer and more varied view of scientific activities recognising that it incorporates a variety of practices ranging from the development of techniques for exploring physical systems to the construction of explanation or argument that combine theories with empirical evidence.

I also planned to provide the appropriate resources and activities that afford all students opportunities for personal engagement. I also helped my students to shape their language and physical activities in ways that are scientifically productive. I also helped the students to develop a sense of communal activity and knowledge, bringing together their initially diverse ideas, activities and purposes.

I also emphasize in both group's performance and individual learning to balance students' freedom and personal growth with successful socialising into scientific discourse. Students' arguments that combine theory and evidence are essential to the work of scientific communities as well as such kinds of complex arguments and procedures are characteristics of functional scientific literacy. Mutual help and participation by all is encouraged by me. Although conceptual change theory provides useful characteristics to look for classroom activities, I found that it provides a limited set tool for classroom task.

5.3 DEVELOPMENT OF LEARNING MATERIALS FOR NEW STRATEGY

Science and Mathematics curricula for ethnic minority students is redesigned to cover a few topics which are most related to the development of their places with more emphasis in cultural aspects, motivation, individual assistance and intensive monitoring. The old teaching and curricula was designed to provide a broad foundation knowledge to the students but actually the science course often ignoring students' every day experience and science experiments are just exciting displays rather than experiences which illuminate concepts and relate them to other ideas because they are fleeting coverages of topics rather than integrated coverage of cultural topics.

In conceptual prespective, the ethnic ninority students' prior knowledge is emphasized. As students begin their study of science with strong held conception, if there are many unrelated topics in the syllabus, the students will not get the proper concept and their ideas will often be inconsistent with the principles taught in the science class and that students often maintain their ideas when incorporating information from the instruction. They will be fitting new information presented in science into their everyday views rather than altering their frame work.

In science reasoning, the students need to represent to same concept in different problem of varied complexity as well as they need to coordinate the complex situation with the situation they understand. If they are taught to achieve the skill of linking their ideas, they might eliminate contradictions and they will be able to create more powerful and robust

ideas. Arranging the topics at more superficial level will enable them to achieve such skill.

Coherent understandiing is one objective in science learning. The students should be able to think their ideas. To enable them to practise to link the ideas, in-depth study in a few topics with use of differentiating and integrating ideas will elevate students' learning in long term because students who had taken a previous course at appropriately linked their learning to the current course and those who received a current course which anticipated their difficulties gain a better conceptual understanding than students who lack on one of these components. There using the sequence of analogy to develop conceptual understanding will only take place in-depth study on the topics and such will provide the above components to the students.

In developmental perspective, it requires to set the activities and teaching methodologies to enable students use a process of reflective abstraction to construct more powerful understanding of scientific phenomena, reflect on their concrete ideas using strategies such as the ability to conduct a controlled experiment and process the ability to logically combine desparate information to establish new conception and integrate ideas to establish consistent view. To achieve such developments, learner's topic related scientific knowledge is to be emphasized and experiments are also required to be designed to prove the desirable outcome for sensible reasoning. Providing the in-depth knowledge needs to emphasize in such aspect to help the development of learner.

Idea of assimilation and accomodation are important facts in logical reasoning. The instruction design to provide in-depth knowledge also needs to take account on assimilation and accommodation. When topic related training was combined with reasoning strategy training, the learning gains are greater than topic related training alone. Thus in-depth coverage of knowledge should consist of reasoning strategy to combine with the topics related training. Reasoning strategy can be achieved by providing the different approaches and various case studies and various examples in different aspects.

To build the understanding , mental representations are built gradually as new information is connected to existing network. Understanding grows as the network becomes larger and more organized and as relationship becomes strengthened with reinforcing experiences and tighter network structuring. To enable the students to build understanding, it is also required for them to focus on features of the representations that capture relationships of interest. Focusing students' attention on particular relationship is important.

As the process of reorganising network and adjoining new representations to existing network both depend, to some degree on the networks that have already been created,. Past experiences create the mental network that learner uses to interpret and understand new experiences and information. People continually try to understand and think about the new in term of what they have already known. Existing network influence the relationship that is constructed, they are helping to shape the new networks that are

framed. By this way, learning in-depth with concrete ,materials will found the strong network in memory as well as it carries a definite meaning within our framework, provides a way of thinking about how alternative representations may support and create their own internal representations of their interaction with the world and build their own network of representation.

In-depth knowledge and understanding can also create richer network in the memory of students. Richer networks are also more likely to connect with new representations than are impoverished networks. Emphasising relationships does not imply that students should be asked to memorise connections rather than the implication of generative understanding in that students can be placed in setting in which they can construct useful connections.

In differential perspective aspect, it emphasises the factors of why some students attain scientific proficiency and why some do not. The diversity in students' proficiency, intellectual skills relevant to scientific proficiency, psychological aptitudes relevant to scientific proficiency and distribution of these skills across demographic groups reflect the students' achievement in science.

The in-depth study in science method and curriculum should emphasises the factual knowledge algoritjhm which provides crystallised ability and abstract reasoning skills such as planning solution to new problem and integrating informations to provide ability to integrate knowledge and ability to apply knowledge to new problem to the students so that they will attain the lifelong learning skill which is the central to science proficiency. As skilled governing lifelong learning is measured by zone of proximal development, it needs to establish the limit of students' knowledge and the students should also be given a hint about how to proceed.

The intellectual skills in science is composed of crystallised ability which consists of decorative knowledge, science knowledge, integrated informations, own reasoning, procedural knowledge and general ability in science proficiency which composes of overlapping between intellectual skill and science proficiency.

The objective of science and mathematics course is also required to promote self-esteem, perception of success, expectation about performance and personal locus of control for students as students' confidence varies with subject matters and learning context and their learning strategies such as autonomy or ability to learn without supervision influence science proficiency. To develop their ability to learn science, perception and self-esteem, the curriculum should provide the appropriate situation and basis for them. The instructions which consist of challenging tasks, multi step asssignments, corporative environments and problem solving orientation will capitalise their autonomous learning .

In problem solving perspective, defining the problems, designing a problem solution and implementing the solutions are the behaviour involved in problem solving. Focus on developing models that describe how individuals store scientific information, how they

access if what procedures they use to apply this information in problem solving situation and developing the effective methods for improving the ability to solve the problem are the procedural skills required for designing the problem solution.

The new curriculum and teaching strategies are designed in-depth to provide the above aspects for ethnic minority students.

In Gneral Science subjects for ethnic minority students, I prepared and taught various science topics with new teaching strategy. Among them, I present the following teaching plan, lesson and way of approach as an example. As their place got water resources for electricity, I present the topic related to new energy- Hydro Energy

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Lesson (1)

Topic	Referring the respective constructive learning and teaching methods	Activities applied in actual conduct of lesson
Principle and Background of hydro electricity	Aim of teaching (A1) Students should develop the structure of lesson concepts (A2) Students should become autonomous and self motivate in the practical activities in the lesson (A3) Students should get the ideas from own thinking/ exploration and participation in the discussion Ref: Constructivist Learning & teaching By Clement & Battista	Aim of teaching (A1) Students develop the concept of hydroenergy and electrical power produced by the hydro electric device through practical investigation. (A2)Students autonomously and self motiviatingly perform the testing and practical works on hydro electrical power supply system. (A3)Students should get the ideas on why the solar panel should be used in the electrical system.
	Teacher Activity (T1) Teacher has to know the subject matter. (T2) Teacher has to know students' perception. (T3) The effective motivation to	Teacher Activity (T1) Make the students be aware of the experience that they are facing lack of electrical power for their living due to high fuel price at their border place. (T2)The student perceive that the

	continue learning is to be fostered by leading students to experience the pleasure. (T4)To have searched and found a path to the goal (T5) Teacher has to concern with what goes on in the students' head (T6)Teacher has to listen to the student (T7) Teacher has to interpret what the students does. (T8)Teacher has to make the sense to the students (T9) Teacher has to teach the students to see why a particular conception or theory is considered scientifically. (T10) Teacher has to employ different teaching strategies. (T11) Teacher has to identify any differences in ideas, attitudes and problem solving ability. (T12) Teacher has to explain the topic of the day and present the clear,well organised,logical and easy to follow lesson to the students (T13) Teacher has to use of needed algorithms,rules,and formulae to be modelled Ref: Constructivism: A theoretical revolution in teaching by Donald M Blais	water fall unrestrictively arrives at them. (T3) Teacher plan the students activity to observe hydro electric turbine and generator from the various technical books. As well as site visits. (T4) By performing the practical experiences in operation of electric generator, they will be in touch with generating of electricity (T5)(T6) The students' comment, interpretation and ideas are also to be listened. (T7)The students ' practical investigation results and their reports on what their finding are also to be interpreted. (T8) The conceptual relationship between hydro energy and electricity output has well founded sense. (T9) The hydroelectric effect caused by sun beam is applied in solar electrical production and such scientifically considered theory is to be taught to the students. (T10) Different teaching strategies such as applied science approach , technology concept approach and vocational approach are to be used. (T11) To identify the differences in ideas related to hydro

		electrical system, advantage and disadvantage, attitudes to perform the practicals and problem solving skills
		(T12) The topic on , principle and background of hydro electricity is to be explained.
		(T13) Algorithm- Energy Flow Rules- Potential Energy Hydro Electric Power Formula-Calculation of Potential Energy of hydro power
	General Attention by Teacher (1) Assess the students' answers whether they are right or wrong. (2)Students explain their answers. (3)Focus the students' attention on the language they are using. (4) Does not allow students to use words or equation without explanation to them. (5)Encourage students to reflect his or her knowledge	
	Instructional Methodology (1) Educator need to be sensitised to students' interpretation of language and select words and expressions that are unambiguous (2)Analyse own teaching strategies related to constructivist practice. (3) Implementation of constructivist teaching practice how constraint can be overcome.	Instructional Methodology (1) It needs to clarify hydro, generator, electricity words.Explain their meanings. (2)Provide the opportunity to students to examine the concept of hydro electricity at hydro electric power station site visit and develop their understandings and knowledge. Then the related relevant theoretical concepts are to be provided and then practical

	(4)Lesson unit plans are produced to perform the constructivist teaching and learning.

(5) Students involve in discovery, investigation,explanation,negotiation,sharing and evaluation.

(6) Develop students' personal science ideas.

(7)All methods are valued and supported.

(8)Guide the students' inventions

(9) Developmental sequence in which students learn specific ideas.

(10) Well designed practical activity that challenge learners' prior conceptions encouraging learner to reorganise their personal theories.

Ref: (8) A constructive approach to teaching by Ernst Von Glasertfeld | applications are given as example.

(3) There will be limitation of conditions to study the well installed hydro power system at the home to be shown as example.But the small skill model is to be provided and then the relevant knowledges are to be drawn out.
 (4) Students discover the rotation of water turbine and electrical current , negotiate the duty in their group, they share their observations and facts, they themselves evaluate the progress of the task.

(5)All methods of observation, discovery ,implementation are supported by relevant lecture notes, picture, photographs and equipments.

(6)Students' invention of the ideas related to development of hydro electrical system is to be guided.

(7)Sequence-Observation on panel, measurement, finding the relationship, reviewing appropriate texts are to be followed.

(8) Practicals are to be well designed to encourage learners' personal theories. |
| | Students' activities

(1) Knowledge is acquired or developed through self-construction processes and resides in a head.

(2) Students' superimpose on a set of objects | Students' activities

(1) The students acquire the knowledge on hydro electric technology through their practical investigation.

(2) By observing the various functions of electrical apparatus |

	(3) Children create new science knowledges by reflecting their physical and mental actions. (4) Students are encouraged to use own method for solving the problems. (5) Knowledge is constructed in the mind of the learner. (6) Construction of knowledge is searched for fit rather than match with reality of knowledge. (7) Knowledge must be absorbed on own perception of reality Ref: (7) Constructivism; A theory of knowledge Ref: (6) Constructivist Learning and Teaching	that use the electricity produced by the genetrator, the students acquire the various knowledges on electrical power and draw out the conclusion that how the clean natural energy source is available from the nature. (3) The students have not only to do the practical observation but also to have to read the books. (4) The students have to determine the solution to case study consisting of electrical supply system for the various needs in their household appliances. (5) Rather than direct giving the principle and knowledge directly to the students, such knowledges related to electrical systems are to be constructed in the mind of the learner by performing the relevant practicals and observing the respective knowledges in theory. (6) (7) Provide the appropriate guidances and direction to enable the learner how to fit their newly acquired knowledge with their already possessed knowledges.

APPLIED SCIENCE/ ENGINEERING SCIENCE

Constructivist Learning & teaching

Lesson (1) Principle and background of hydro electricity

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Aims and objectives

After studying this lesson, the students should be able to:

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(A1) -Develop the concept of hydro energy and electrical power developed by the hydro electric device through practical investigations.
(A2) -Autonomously and self motivatingly perform the testing and practical works on electrical power supply system.
(A3) -Get the ideas on why the electric turbines should be used in the electrical system.
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Teacher activity

(T10) Teacher has to explain the topic of the day and present the clear, well organised logical and easy to followed lesson for students in principle and background of hydro electrical system.
(T1) Make the students be aware of the experience that they are paying the money to buy fuel each month and sometimes how shortage of fuel can give disadvantage to them. Ask the students about water resources and water falls in their places.

(T2) The students perceive that the hydro energy is available in their place
*Ask the questions to the students how much they pay the money for fuel each month
*If they want to built rice mills in their place, how they face the difficulties
*To clarify the students that the hydro energy is plentiful and cheaper for use.
*To enable them freely decide that if they use hydro energy which are plentiful in their places as forms of water falls,what advantage will they get.

(T3) Teacher plans the students' activity to observe electrical generating system
*Lead the students to generator practical rooms at Government Technical Colleges and Electrical Stations.

*To make them to comment that how electrical current is produced when the turbine rotates,.
*Explain the construction of generator and turbine.

Background theory:-Principle and background of electrical technology , hydro turbine and generator.

(T4) By performing the practical experiences in electrical generating system, the goal of how the electricity can be produced by hydro electric turbine is reached.
*Ask the students to study the hydro turbine and generator by sketching and observing the construction.
*Drive the machineries and ask them to observe
*Let them to observe how the height of water relates to its stored energy by driving water wheels by the water stored at different heights.
*Show the constrctions of the hydro electric power station located at Nant Pan hydro electric power station of 7500 Kilowatt at their place.
(T6) The students' comment, interpretation and ideas are also noted.
(T7) Guide the students practical investigation results and their reports on what they found are also to be interpreted.
(T8) The conceptual relationship between hydro energy and electricity output has well founded sense

*Provide the following theory:-
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Hydro electric energy is depends on the height, volume of water and potential energy of water stored at height. The following equation is applied to determine the water potential energy.
Potential Energy of Water= 9.8 x Hetght of stored water x Volume of stored water
Potential energy of water is convertible to electric energy out put by driving generator with water. Eastern Shan state has plenty water resources and water falls. Thus hydro electricity can be developed by founding hydro electrical power stations and it can contribute the higher living and development of the eastern shan state.

(T9) The generated electrical current effect produced by the generator which is driven by water turbine is observed by the students and notes are asked to take.
(T10)Teacher has to employ different teaching strategies

Teaching strategies	Performance
Applied Science Approach	*Ask the students to describe the application of hydro and electrical equipments. *The students have to study the basic scientific theory behind Potential ,Kinetic energy ,momentum, inertia and practical application of such theory.
Technology Concept Approach	*Demonstrate the students, construction of generator system with help of diagrams.
Occupational and Vocational Approach	*Ask the students to consider application of electrical energy and electrical appliances and how such applications are utilized at their place. *Ask the students to write the essay on the topic " How the knowledge gained in the study can be applicable in development works at their places"

(T11) To identify the differences in ideas related to solar electrical effect, advantage and disadvantage, attitudes to perform the practical and problem solving skills.
*Ask the students to present their ideas on how convectional energy is replaced by hydrotechnology

Instruction Methodology
(I1) Provide the meaning of hydro energy, generator, electricity
 (I2) Provide the opportunity to students to examine the concept of hydro electricity and develop their understanding and knowledge ,then related theoretical concepts are to be provided to them and then practical applications are given as examples.

 (I3) Implementation of constructivist teaching practice (How constraints to be overcome)
As it is difficult to acquire large hydro power system, small hydro electrical system comprising water tank, small turbine and small generator in laboratory room is used in teaching..

(I6) Students involve in discovery/invention/explanation/negotiation/sharing and evaluation
(I7) Develop students' personal science ideas
(I8) All methods are valued and supported.

Discovery

The students are asked to allocate the water tank at different heights and observe the operation of hydro electrical generation system. By this way, the height and amount of stored water influence on the amount of out put electricity

Invention

Depending on the electrical load, they will invent the idea of how to determine the appropriate size of water tank. Their personal science ideas on physics, theory,applied science are developed.

Explanation

The students will have to explain the results obtained from their observation and ideas expressed in their report.They will have to perform verbal and written explanations.

Negotiation

The students will have to participate in role playing activities of negotiation with the supplier of solar electrical products to install a hydro electric system in their homes.

Sharing

The students will have to join in group activities in which they will discuss and share their ideas, outcomes, findings and innovations.

Evaluation

The students' performances are evaluated in term of how well they can acquire the facts in their observations,how well they can innovate the ideas, how well they can present,share,negotiate, discuss and participate in group activities.

Valuation and supporting

All their methods, outcomes, ideas, innovations and activities are valued and supported by way of close supervision, mentoring,materials provision, providing with reference sources and highlighting the new ideas.

Guide the students' inventions

The students' invention is guided by providing with occupational health and safety system, respective legalisation on application of electrical equipments, materials and methods and guiding the appropriate reference sources.

Developmental sequence in which students learn specific ideas

(1) Observe the turbine and generator.
(2) Observe the relation between the amount of output voltage produced by the turbine and position of the water storage.
(3) Observe the construction plan of hydro electrical system
(4) Read the appropriate books and references related to hydrology and electrical equipments.

(I10) Well designed practical activities that challenge learners' prior conceptions, encouraging learners to re-organise their personal theories

The following practicals are to be performed by the students:

(1)Observation of voltage produced by hydro turbine
(2)Construction of Hydro Electric System.

Students Activities

(1) Knowledge is acquired or developed through self construction process and resides in head.

The students' activities are aimed at their observation and acquiring hydro electrical system that hydro power is available at their border place and it can greatly contribute to construct industries thus drug and poppy growing business can be eliminated at their border places.
.
(2) Students' superimpose on a set of objectives

The objective of instruction with environment, technologies and devices,detailed investigations in the respective scientific phenomena, cost and benefit study, usage and limitation of hydro electrical system, group activities which will develop their personal activities, presentation skills,problem solving ability,ability to think and innovate, reading skill, collecting the facts relevant to hydro electrical system from the book and improving the practical skill in applied science are the main objectives for the students.Their performing and superimposing the ideas acquired by them from doing such activities to meet objectives will utilise constructivist learning for them.

(5) Knowledge is constructed in the mind of the learner
(3) The students create new science knowledges reflecting on their physical/ mental conditions.

(4) Students are encouraged to use own method for solving problems
*Students have to read the relevant articles and topics related to hydro /electrical/battery/environmental effects/clean energy from the various books which can be available from their school/ local libraries.
*They will have to collect the relevant facts/make own notes/presentation and discuss themselves or with teacher to improve their finding/problem solving and presenting skills as well as well absorbing the scientific concepts from the practical works and readings.

(5) Knowledge is constructed in the mind of the learner
(6) Construction of knowledge is searched for fit rather than match with reality knowledge
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The basic objective of hydro electrical system lesson is to enable the students know of principle of hydro power, power generation, application and clean energy.
Such knowledges are developed in the mind of students by performing the interactive activities with the materials, by performing the practicals and by finding the relevant facts from the references.The students themselves search for fitting the knowledge in their practical application and develop the cognitive skill on how to acquire such skill and knowledge.
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My Observation

I prepare the applied science lessons in hydro technology for my engineering science students of ethnic minority group at Government technical Institute , Yangon As I described in the lesson plan in the format of journal which includes constructivist teaching methodology, my plan, activities, bench mark for assessment of students' progressive and detailed teaching plans.

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According to constructivist learning and teaching by Clement and Battista, the preparation of lesson should aim to enable the students to develop the structures of lesson concepts, becoming autonomous and self motivation and own thinking, exploration and participating in the discussions, teacher's activities and student's activities as described in the lesson plans and which are also outlined in the articles: A Constructive Approach to Teaching by Ernst Von Gloserfeld, Constructivism: A Theoretical Revolution in Teaching by Donald M Blais, A Constructivist Approach to Teaching by Ernst Von Gloserfeld are provided.

According to A Constructive Approach to Teaching by Ernst Von Gloserfeld, it is important that teachers have to know their subject matters and students' perception, I outlined teacher activities that motivate students' learning, that search and found a path to the goal of learning, listening to the students, interpret what students do by employing different teaching strategies and identifying students' ideas,attitudes and problem solving abilities.

I found that the teaching methodology of sensitising to students' interpretation of language, analysing own teaching strategies related to constructivist practice, enabling students to involve in discovery, inventing, explanation, negotiation, sharing,evaluation, guiding the students' invention and providing the well designed practical activities that challenge learner's prior conception encouraging learner to reorganise their personal theories are well successful to enable the students to achieve good understanding and absorption of science theory- Hydro Technology what they have learnt.

From the survey results , I found that the traditional method of giving the notes on study topics technology, explanation, attend some practical demonstrations which are initiated and led by teacher.Although the students said that they could get the lesson after conclusion of each class, but in tests, I frequently found that many students are seemly not achieving the knowledges of the lessons what they supposed to absorb.For example, they can not relate the knowledges, they just possess the rote learning, they did not construct themselves on the knowledges and ideas and they did not interact with the lesson materials.

But after applying the constructivist learning method, as I described in my lesson plan, better learning in science is achieved among students.
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My findings are recorded in the journal for teacher activity.Methology followed and students activities are organised and performed for each of teacher activities.

ACTIVITY DESCRIPTION AND PROGRESS		REMARKS	
ACTIVITY DESCRIPTION	MY PERSPECTIVE	STUDENTS PERSPECTIVE	PROGRESS
(T1)Teacher to know the subject matter (T2)Teacher to know students'	I perceive that the students will investigate their cost for energy use	The students present various assignments especially they can explain their experience with no	According to their perception, I can say that this stage is in progress

perception		enough energy at their place.	
(T3) Effective motivation to continue learning is to be fostered by leading students to experience the pleasure (T4)To search and found a path to the goal	I instruct my students to observe electrical generating system.	They can perform the activities that I asked them to do	As their findings and explanation meet my plan, this step is also progressive
(T5) Teacher has to concern with what goes on in the students, minds (T6) Teacher has to listen to the students (T7) Teacher has to interpret what students do (T8) Teacher has to make sense to the students	I discuss with the students regarding what they perceive in their heads on the topics of hydro power/ energy	From the observations, the students can draw out the ideas and explanation that they got from their practical investigations	As my students can well explain and show their ideas, this step is a progressive one
(T9) teacher has to teach students to see why a particular conception or theory is considered scientifically	The potential energy, kinetic energy, hydro electrical current and it's applications are taught	Although some students at first faced some difficulties, by performing the repeated observations and demonstrations, they can get the ideas	As this step involves the detailed scientific ideas, it's progress was slower than the previous steps, it reached the goal

5.4 Research Observation before and after implementing new strategy

Research Observation before implementing new strategy

Science ability

(a) The students can not use the scientific terms in precisely as they can not absorb all of many topics
(b) They will view scientific phenomena in isolation
(c) They will acquire the limited or incorporated view of casual relationships

(d) They will come to assure that science is to be memorize but not understood.

The ethnic minority students usually hesitate to participate in the classroom activities. The language and culture differences also influence on their poor capability. According to the survey results about 75 percents of ethnic minority students do not appreciate science and mathematics because they believe that the things which they have never in touch with before are being taught in the class. Most of them think that the science theories such as fluid, mechanics, kinetic energy, potential energy are the things that they do not understand even the meaning of words and they are not related to any aspect of their life. As they do not possess appropriate previous study in science, it is difficult for them to do the secondary equivalent level science course.

They do not show a disposition to use mathematics to assist with understanding their daily use of mathematics and solve the problem. As mathematics is a subject which is normally difficult to understand, the mathematics lessons which are composed of equations, principles and problems were regarded by them as difficulties in their course. Poor perception on mathematics also causes the disadvantage on their perception on science concepts. They do not regard mathematics as an important subject that influence aspect of their daily life. Most of the ethnic minority students possesses the investigating skill to answer question what the natural and technological world reflection and analyze to prepare a plan, collect , process, interpret the plans , make conclusion and evaluate plan. The students can not understand the scientific words thus they can not appropriately communicate with their peers and teachers to convey the scientific messages.

By observing the questionnaires and individual's activities, their score were low on leadership behaviour, helpful/ friendly behaviour, understanding behaviour, students' responsibility and freedom behaviour, But their scores are high on admonishing behaviour, dissatisfied behaviour, strict behaviour and uncertain behaviour.

After implementing the new teaching strategies and curriculum that takes account on cultural difference, addressing the points that reduce their perception on subject matters, using appropriate strategies to improve their learning environment and to overcome study difficulties, using effective activities designed to develop ethnic minority students' mathematics knowledge/ skills with understanding, using effective recordkeeping and journals on their improvement, anadodes and their perception, using assessment priorities that looks beyond what students can obtain the answer, using information about students' misconception to guide future planning and provide sufficient opportunity to provide their skills, their perception on science, their participation and academic activities in science and mathematics course, their achievement in assessment tasks and their behaviour are greatly improved.

In observing their improvement after implementing new curriculum and teaching strategies are implemented, member check, trigulation and ethical issues are also utilized to get reliable and valid data. The students' participation and academic performances are

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holistically assessed and they students show their actual perception and performance which are different from before so that credibility can be established.

The intent of a given action such as asking the students to consider how electricity can develop their places is assessed in line with the new teaching strategies that encourages and motivates the ethnic minority students to get interest in the course of study. Thus the results obtained are meaningful.

5.5 **Member Check**

In each step of implementing new strategy, errors of fact and error of interpretations are corrected. In teaching and learning sessions, students ' wrong interpretations on mathematics process and scientific approach are frequently corrected. Not only the observation and record in academic performance, the additional informations such as the ethnic minority students' after hour school activities and their participation in social life of the school are also collected so that their behaviour can be more effectively assessed. When interview with the students to ask the questionnaires designed in the action research project are conducted, the adequacy in time, level and appropriate encouragement on them to take part in the procedure are arranged. Thus the students can provide more reliable and valid answers in the member check process. The discussion with other teachers are also performed so that the member check process become higher degree in completeness.

When collecting the information from the other teachers and school authorities, the context of the information received are checked whether they possess similarity (Transferability process). To check dependability, the data received are checked in aspect of their confirmability. The results achieved in application of different survey methodas are compared to establish the internal validity and Alternate measure on the cause and effect across ethnic minority students and teachers, setting appropriate time and applicability in question are also set up to achieve the external validity. Regarding authenticity criteria, prolonged engagement in collecting the data, assessing the students, performing the interviews, persistent observations on their behaviours and performances, and assessing the fairness and different constructions of the research processes are performed to get the authentic research report.

The data obtained in the research action process are checked in the aspects of their consistency, dependability, predictability, stability and accuracy to achieve the reliability. The students' outcome after implementing the new teaching strategies and curriculum are obtained by implementing the above research procedures which are essential for validity in the research.

5.6   Ethical issues

As the method that I will utilize in the research is qualitative approach, the ethical issues are more acute in the research. It is important to maintain the integrity in the research and the research conclusions are adequate in a way consistent with the standards of theoretical and methodological perspectives.Care is taken on the way and conclusion which I will make in my research will not jeopardize the future research because investigating the way to improve students' behavior is a continuation process

As my role as an educational researcher, it requires to disclose my findings and opinions in improving students' behavior to the relevant school authorities. The research findings are honestly and fully disclosed to the relevant school authorities and stakeholders of school policies.

To achieve quality research outcome, I make forthright personnel recommendations and not to recommend those who are manifestly unfit.In my research, both boys and girls participate. All forms of harassment, not merely those overt actions or threats that are due cause for legal action are avoided. The coerce personal or sexual favors or economic or professional advantages from students, research assistants, clerical staff, colleagues or any others is also avoided.

5.6.1 Researcher initiate involvement in the research methods and procedure

I will have to initiate the involvement in activities that enhance the general welfare of the learning system in the school to include the effects on the participants and the social consequences of the publication. I aware of the variety of human goods and the variety of views on the good life, and the complex relation of education with them. As the students participate in my action research, the significant harm to the participants ,physical damange or pain, loss of privacy are avoided.

The information to be given prior to consent has to include the nature and methods of the research, its purposes, any risks run by the participants, and the likely social and personal consequences of its publication and any other   factors which might reasonably be expected to influence their willingness to participate. Participants are to be informed of any changes in these considerations which occur in the course of the research. Persons who are participants in research are asked for their informed consent. Cultural, religious, gender and other significant differences in the research population, are taken care in the planning, conduct and reporting of the research to minimise the risk of harmful social or psychological consequences of my research, and take steps to remedy any that occur.
The arrangement is made for my projects to be discussed with the representatives of the group concerned where such exist (and with other appropriate authorities where they do not) before they are commenced and the results discussed before they are published.
Thus the improvement of students' behaviours and their academic performance are achieved by doing the action research method by obeying the research ethics.

6.0 Data Collection and Analysis

6.1 Data collection with old and new strategies

Both quantitative method composed of questionnaires and collection of datas and qualitative method of making the interviews with the students and teachers are done in the research action project. The kind of questions, type of methodology, the reason to apply the methodology, expected outcome, the reference numbers of questions and target groups are expressed in the following table. The questionnaires are written in both English and Burmese language. They are referred from the reader. I myself modified and prepared some questions to suit with the situation of ethnic minority students.

Methodology	Reason to apply the method	Reference numbers of questions	Kind of question	Target group
(A) What Is Happening In this Class	To assess the classroom environment influenced by social and cultural factors	A1 to A8 A9 to A16 A17 to A24 A25 to A32 A33 to A40 A41 to A48 A49 to A 56	Student Cohesiveness Teacher support Involvement Investigation Task Orientation Co-operation Equity	Ethnic Minority Students
(B) Questionnaires on Teacher' Interaction	To study interpersonal Relationship between teachers and ethnic minority students.	B1,B5,B9,B13 B17,B21 B2,B6,B10,B14 B18,B22 B3,B7,B11,B15 B19,B23 B4,B8,B12,B16 B20,B24 B25,B29,B33,B 37 B41,B45 B26,B30,B34,B 38 B42,B46 B27,B31,B35,B 39 B43,B47 B28,B32,B36,B 40	Leadership Understanding Uncertainty Admonishing Helpful / Friendly Students responsibility / Freedom Dissatisfied Strict	Ethnic Minority Students

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		B44,B48		
(C) Constru-ctivist Learning Environment Survey	To assess the condition to provide the meaningful learning of ethnic minority students in culturally different classrooms	C1,C2,C3,C5,C5, C6 C7,C8,C9,C10, C11,C12 C13,C14,C15, C16,C17,C18 C19,C20,C21 C22,C23,C24	Learning about life in Australia Learning to speak out Learning to learn Learning to communicate	Ethnic Minority Students
(D) My Class Inventory	To study the attitude of ethnic minority students during the transition period of changing from their rural classroom to cities classroom	D1,D2,D3,D4, D5 D6,D7,D8,D9, D10 D11,D12,D13, D14 D15 D16,D17,D18, D19D20 D21,D22,D23, D24 D25	Satisfaction Difficulty Competitiveness Friction Cohesiveness	Ethnic Minority Students
(E) Individu-alized Class-room Environment Survey (ICEQ) and Classroom Environment Scale (CES)	To assess ethnic minority students' perception in two teachers of different understanding in cultural difference	ICEQ E1 E2 E3 E4 E5 CES E6,E7,E8 E9,E10,E11,E12 E13,E14	Personalization Participation Independence Investigation Differentiation Task Orientation Involvement Teacher support	Ethnic Minority Students

The questionnaires are provided on the following pages:

The questionnaires are asked for two conditions. In the first condition, they were attending the class which was taught by applying old teaching strategy. In the second condition, they were learning the lessons which were taught under new teaching strategy and new curriculum.

Data Collection , Analysis and Interpretation

The collected datas are analyzed by using both manual and computer method. Excel software is used to analyze the data. Ethnic Minority Class 1 represents the data collected at old teaching strategies and Ethnic Minority Class 2 represents the data collected at new teaching strategies

The analyzing procedure for the methods are as follows:-

(1) Analyze the data for WHAT IS HAPPENING IN THIS CLASS?

   (a) The scores on the questionnaires are recorded in the Excel worksheet.
   (b) Overall mean and Standard Deviation are calculated.
   (c) The graph is prepared
   (d) Interpretation is made for the graph.

(2) Similarly the above procedure is repeated for-

   • QUESTIONNAIRES FOR TEACHER INTERACTION
   • CONSTRUCTIVIST LEARNING ENVIRONMENT SURVEY
   • MY CLASS INVENTORY
   • INDIVIDUALISED   LEARNING   ENVIRONMENT   QUESTIONNAIRES   &
     CLASSROOM ENVIRONMENT SURVEY

Detailed records of the scores and data analysis are stored in the computer disk.

Calculation of Mean for Ethnic Minority Students (Class 2) under new teaching strategies

Mean for each scale such as   SUM of the scores of student 1 to 15
Student Cohesiveness   =--
                                  Total number of students
                                          468
Mean (Student Cohesiveness)=----------
                                          15
                              = 31.2

Similarly Mean for other Scales of WIHIC methods and the other methods are calculated.
In the written report, the results will be expressed.

                The sum of the squares of the difference between each score and
the mean

      The Variance =---

                    Total number of students -1

$$\delta^2 = \frac{\Sigma (X-\mu)^2}{N-1}$$

$$\frac{(30\text{-}31.2)^2+(31\text{-}31.2)^2+(23\text{-}31.2)^2+(26\text{-}31.2)^2+(35\text{-}31.2)^2+(33\text{-}31.2)^2+(35\text{-}31.2)^2+}{(37\text{-}31.2)^2+(32\text{-}31.2)^2+(36\text{-}31.2)^2+(39\text{-}31.2)^2+(30\text{-}31.2)^2+(31\text{-}31.2)^2+(30\text{-}31.2)^2+}{(20\text{-}31.2)^2}$$

=--
                                          15 - 1

$$=\frac{311.7}{14}$$
$$= 31.2$$

Standard Deviation = Square root of the variance

$$\delta \quad =\sqrt{31.2}$$
$$\delta \quad = 5.17$$

Similarly Mean for other Scales of WIHIC methods and the other methods are calculated.
In the written report, the results will be expressed.

ETHNIC MINORITY CLASS (1) Data for Graph

Graph 1 Scale VS Mean   Graph 2 Scale VS Standard Deviation

SCALE	MEAN	SCALE	SD
Student Cohesiveness	18.13333	Student Cohesiveness	4.71
Teacher Support	18.73333	Teacher Support	4.04
Involvement	19.26667	Involvement	4.33
Investigation	18.73333	Investigation	3.239
Task Orientation	18.2	Task Orientation	2.93
Co-operation	18.33333	Co-operation	3.39
Equity	18.73333	Equity	3.49

ETHNIC MINORITY CLASS(2)   Data For Graph

SCALE	MEAN	SCALE	SD
Student	31.2	Student	5.17

Cohesiveness		Cohesiveness	
Teacher Support	31.6	Teacher Support	4.388
Involvement	31.53333	Involvement	3.7
Investigation	30.93333	Investigation	3.369
Task Orientation	31.6	Task Orientation	2.26
Co-operation	31.26667	Co-operation	2.12
Equity	31.26667	Equity	3.172

Ethinc Minority Class 1(Red) & Ethinc Minority Class2 (Yellow)

Ethnic Minority Class 1 (Yellow) & Ethnic Minority Class 2 (Green)
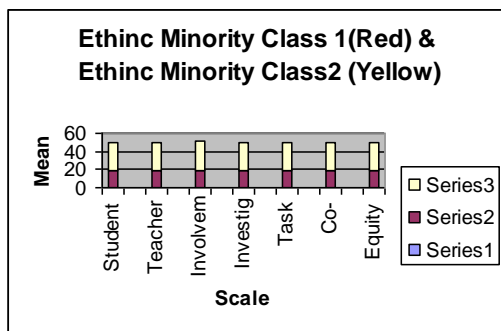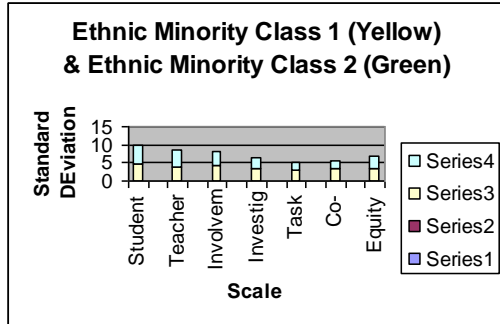
The graphs are also prepared for the expression of the relation. (Graph A)

Similarly the above method is repeated for QTI, CLES, MCI ,ICEQ & CES

(B)QUESTIONNAIRES ON TEACHER INTERACTION

Ethnic Minority CLASS (1) DATA FOR Graph

Graph 1 Scale VS Mean

SCALE	MEAN
Leadership	13.73333
Understand	12.66667
Uncertainty	20.86667
Admonishing	19.2
Helpful/Fri	13.8
Response	13
Dissatisfy	18
Strict	16

Graph 1 Scale VS Mean

SCALE	MEAN
Leadership	25.2
Understand	25.2
Uncertainty	10
Admonishing	18.2
Help/Friend	22.13333
Responsibili	25.66667
Dis satisfy	10
Strict	11

The graphs are plotted to show the significance in the survey

Ethnic Minority Class 1(Blue) & Ethnic Minority Class 2 (Red)
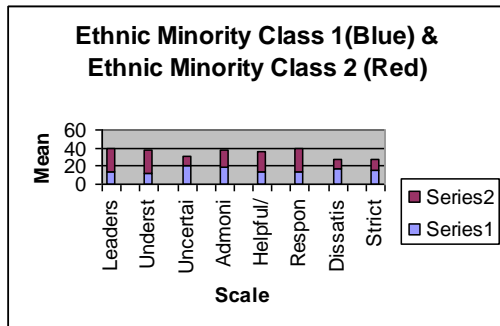
(C)Constructivist Learning Environment Survey Method

ETHNIC MINORITY CLASS (1) DATA COLLECTED FOR GRAPH

Graph 1 Scale VS Mean

SCALE   MEAN

Cities Society	23.8
Speak Out	23.2
Learn	22.8
Communicate	22.33333

ETHNIC MINORITY CLASS (2) DATA COLLECTED FOR GRAPH

Graph 1 Scale VS Mean

SCALE	MEAN
Cities Society	24.13333
Speak Out	23
Learn	23.53333
Communicate	23.26667

**Ethnic Minority Class 1 (Red) &
Ethnic Minority Class 2 (Yellow)**

(D)MY CLASS INVENTORY
ETHNIC MINORITY CLASS (1) DATA COLLECTED FOR GRAPH

Graph 1 Scale VS Mean

SCALE	MEAN
Satisfaction	10
Difficult	11.06666 7
Compete	9.2
Friction	9.73333 3
Cohesive	9.26666 7

ETHNIC MINORITY CLASS (2) DATA COLLECTED FOR GRAPH

Graph 1 Scale VS Mean

SCALE	MEAN
Satisfaction	12.6666 7
Difficult	7.2
Compete	12
Friction	7.06666 7

Cohesive   12.6

**Ethnic Minority Class 1 (Blue) &
Ethnic Minority Class 2 (Red)**
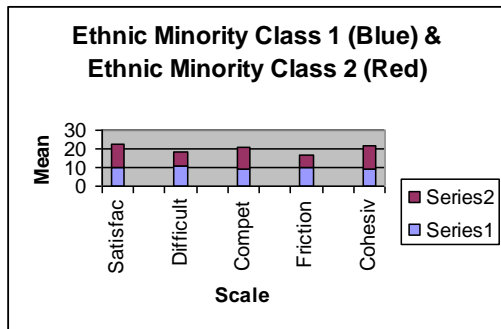
(E)INDIVIDUALIZED CLASSROOM ENVIRONMENT INVENTORY   (ICEQ)&
CLASSROOM ENVIRONMENT SCALE (CES)

ETHNIC MINORITY CLASS (1) DATA COLLECTED FOR GRAPH

Graph 1   Scale VS Mean

SCALE	MEAN
Personal	3.733333
Participation	3.733333
Independen	3.666667
Investigation	3.6
Diffenentiate	3.4
Task Orient	10.2
Involvement	14.53333

Teach Supp	6.866667

ETHNIC MINORITY CLASS (2) DATA COLLECTED FOR GRAPH

Graph 1 Scale VS Mean

SCALE	MEAN
Personal	2.6
Participation	2.733333
Independen:	2.333333
Investigation	2
Differentia:	2.133333
Task Ori:	6.533333
Involvement	9.4
Teach: Supp	5

Ethnic Minority Class (1) Red & Ethnic Minority Class 2 (Blue)
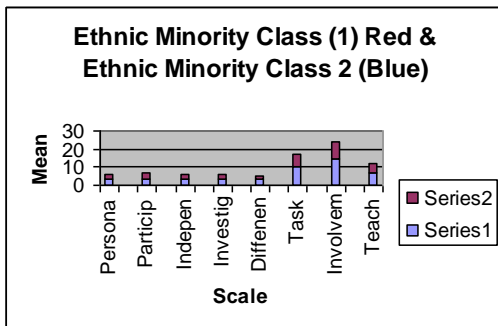
Computerized Data Analysis

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Excel software is used in data analysis. By applying Excel software, the score of students' answer on questionnaires are entered to the table and mathematical formulae are inserted into the cell to get the mean, to copy the value from the cell to master table and then to the record the combination of students' score for each questionnaire.

The following is the outline of how to record and analyze the data.

(A) <u>WHAT IS HAPPENING IN THE CLASS</u>

Reference excel file : What Is Happening In this Class

The Cohesiveness score for the student (1) is recorded in the table as follows:-

Question	Almost Always(1)	Seldom (2)	Some time (3)	Often (4)	Almost Always(5)	Total
1	A11	A12	A13	A14	A15	A16
2	A21	A22	A23	A24	A25	A26
3	A31	A32	A33	A34	A35	A36
4	A41	A42	A43	A44	A45	A46
5	A51	A52	A53	A54	A55	A56
6	A61	A62	A63	A64	A65	A66
7	A71	A72	A73	A74	A75	A76
8	A81	A82	A83	A84	A85	A86

A1= Ethnic Minority Class (2) student (1)'s score on student cohesiveness.

A16=A11+A12+A13+A14+A15
A26=A21+A22+A23+A24+A25
A36=A31+A32+A33+A34+A35
A46=A41+A42+A43+A44+A45
A56=A51+A52+A53+A54+A55
A66=A61+A62+A63+A64+A65
A76=A71+A72+A73+A74+A75
A86=A81+A82+A83+A84+A85

Student 1 's Student Cohesiveness Score A1 = A1-6+A2-6+A3-6+A4-6+A5-6+A6-6+A7-6

Similarly, Student 2's Student Cohesiveness Score=B1-6+B2-6+B3-6+B4-6+B5-6+B6-6+B7-6+
                                        B8-6

Then for student cohesiveness, the score of students 1,2,3---- 15 are entered into the table.

Student 1   A1
Student 2   B1
Student 3   C1
     :   '
     '   '

Formula is entered for A1 to be copied from the summation of score for Student Cohesiveness questionnaires of students.

Similarly the score for teacher support for student 1, 2 , 3-------- are also entered to the table.

Student 1   A2
Student 2   B2
Student 3   C2   etc

Then the mean and standard deviation are calculated as in the manual method shown above. The graph is then plotted.

MAIN PARTS OF EXCEL PROGRAM FOR (A) What Is Happening In this Class method.

Note- The parameters represent excel work sheet cells.

Q A1   G6= B6+C6+D6+E6+F6
Q A2   G7= B7+C7+D7+E7+F7
Q A3   G8= B8+C8+D8+E8+F8
Q A4   G9= B9+C9+D9+E9+F9
Q A5   G10=B10+C10+D10+E10+F10
Q A6   G11=B11+C11+D11+E11+F11
QA7   G12=B12+C12+D12+E12+F12
QA8   G13=B13+C13+D13+E13+F13

Total score for Student Cohesiveness (QA1 to QA8)

H14=G6+G7+G8+G9+G10+G11+G12+G13

Similarly Excel formulae are entered for Teacher Support Questionnaires, Involvement, Investigation, Task orientation, Co-operation and equity. The detailed of the entered formulae can be found by clicking the sub total cells.

Ethnic Community Class (2)

Copying the respective score for the scales of student (1) Student Cohesiveness
Student 1 > C74 = H14

Teacher Support   Student (1) > G74=H23

Involvement   Student (2) > K74=H32

Investigation   Student (3) > O74=H41

Task Orientation   Student (4) > S74=H50

Co-operation   Student (5) > W74=H59

Equity   Student (6) > AA74=H68

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C74   Student 1 = H14
C75   Student 2 = Q14
C76   Student 3 = Z14
C77   Student 4 = AI14
C78   Student 5 = AR14
C79   Student 6 = BA14
C80   Student 7 = BJ14
C81   Student 8 = BS14
C82   Student 9 = CB14
C83   Student10= CK14
C84   Student 11= CT14
C85   Student 12= DC14
C86   Student 13= DL14
C87   Student 14=DU14
C88   Student 15=ED14

Total C89= C74+C75+C76+C77+C78+C79+C80+C81+C82+C83+C84+C85+C86+C87+C88

Mean C90= C89/15

Similary the square of the respective difference between each score and mean are programmed with Excel. Then it is divided by N-1 N= Number of students took part in the survey.

Standard Deviation is calculate by finding the square root of the data.

Similarly Excel programs are produced for the other scales of WIHIC method and those of the other methods.

The disk that contains the Excel work sheets containing the methods includes the following Excel files.

Name of Data File	Method of Analysis	Contents
WIHIC	To analyze how length of stay in cities and cultural competency affects the classroom environment.	Sheet 1- Survey Datas and Calculation of Mean Sheet 2- Graphs
Questionnaires on Teacher Interaction	To analyze how students' cultural competency affects the students' interpersonal relationship with teachers.	Sheet 1- Survey Datas and Calculation of Mean Sheet 2- Graphs
Constructvist Learning Environment Survey	To analyze how meaningful learning can be provided to ethnic minority students of culturally diverse background.	Sheet 1- Survey Datas and Calculation of Mean Sheet 2- Graphs
My Class Inventory	To analyze the attitude of ethnic	Sheet 1- Survey

	minority students during the transition period.	Datas and Calculation of Mean
		Sheet 2- Graphs
Individualized Classroom Environment Questionnaires & Classroom Environment Scale	To analyze ethnic minority students' perception on the teacher whose possess the different understanding on cultural diversity.	Sheet 1- Survey Datas and Calculation of Mean
		Sheet 2- Graphs

(B) Questionnaires on Teacher Interaction

Leadership

Questions= B1+B5+B9+B12+B21

B1# H6=C6+D6+E6+F6+G6
B5# H10=C10+D10+E10+F10+G10
B9# H14=C14+D14+E14+F14+G14
B12#H17=C17+D17+E17+F17+G17
B21#H20=C26+D26+E26+F26+G26

Similarly, the scores are calculated other scales

Scale	Questions
Understanding	Questions: B2+B6+B10+B14+B16+B22
Uncertain	Questions: B3+B7+B11+B15+B19+B23
Admonishing	Questions: B4+B8+B12+B16+B20+B24
Helpful/Friendly	Questions: B25+B29+B33+B37+B41+B45
Student Responsibility/ Freedom	Questions: B26+B30+B34+B38+B42+B46
Dissatisfied	Questions: B27+B31+B35+B39+B43+B47
Strict	Questions: B28+B32+B36+B40+B44+B48

Mean of leadership for students

$$\text{Mean} = \frac{\text{SUM of the score of 15 Students in Leadership Questionnaires}}{\text{Total Number of Students (15)}}$$

Leadership

Student (1)   C74=F54
Student (2)   C75=O54
Student (3)   C76=X54
Student (4)   C77=AG54
Student (5)   C78=AP54
Student (6)   C79=AY54
Student (7)   C80=BH54
Student (8)   C81=BQ54

Student (9)   C82=BZ54
Student (10) C83=CI54
Student (11) C84=CR54
Student (12) C85=DA54
Student (13) C86=DJ54
Student (14) C87=DS54
Student (15) C88=EB54

Total   C89 = C74+C75+C76+---------------+C88

Mean = C89 / (N-1)   N= Number of students

Similarly mean for other scales are also calculated.
Then the graph are plotted.
Detailed program can be found in the excel worksheet cells.

6.2   The procedure to determine the data collection instrument appropriate to research question

The appropriate standards are required to set up to achieve the good quality data in quantitative studies. As the quality of data depends on quality of measuring instrument, appropriate standard are required to assess the measuring instruments. The qualitative research procedure, the standards are required to set for applying interview schedules.

In data collection process, The standard for verifying and checking data set up. Data are collected by arranging interviews with students, with other teachers, with parents and also by searching students' performance records. Check lists are applied to check list of resources, interactions, skills , classroom practice and facts in students' records and portfolios of students' works.

I will also study teachers' plans and programs of key documents such as journals written by teachers on students' behaviour, logs of meetings of visits. The evidences are assessed in the aspect of appropriateness, authenticity and validity. To determine the validity, cross checking, interpretation, feeding data back to participants for reflective consideration, checking for face validity, giving data to some other people to see if they interpret it in the same way and may be asked the respondents to comment upon the data and interpretation. To increase the validity, triangulation method is applied. As data are collected from various data sources such as students, staffs , school administration , it is necessary to use multiple methods and sources of data in execution of study in order to withstand critique by colleagues.

Qualitative research method is used to help conceptualize the studies ,surveys are conducted to corroborate observational data. Research and evaluation will be improved by triangulation which is a strategy for improving the validity of research of evaluation, findings and strategy that will aid in elimination of bias and allow the dismissal of plausible rival explanations.

The survey procedure which investigates the deterioration of students' behavior in transition period of changing from rural classroom to cities classrooms consists of the

questionnaires to determine leadership behavior, helpful friendly behavior, understanding behavior, students' responsibility and freedom behavior, admonishing behavior, dissatisfied behavior, strict behavior and uncertain behavior. The questionnaires are designed to collect the data relevant to the above aspects and interviews are aimed to determine the reliability of data.

Quantitative oriented approach is applied and the facts include experimental, quasi-experimental survey, comparative research design, deductive inquiry, practical and educational significance , reliability and validity.

But the process which is the survey procedure to investigate the effectiveness of teaching method and curricula on students' behavior consists of the questionnaires to determine the effectiveness of appropriate lesson plan, effective activities designed to develop students' mathematics knowledge, skills with understanding and change of attitude. The data collected from such procedures can not be completed in one or two days. It needs to observe and collect the data for a specified period. Assessment of students' ability, interviews to judge the effectiveness of methodologies and students' appreciation on the teaching strategies are arranged.

Qualitative method is applied in collection of data, questionnaires and arrangement of interviews.
It involves ethrograph, case study, description account, narrative, inductive inquiry, field work, participants' observation, document analysis (such as analysis of test questions), collection of artifacts (such as sample of students' work). Trust worthiness of description, interpretation, judgement of quality of research.

The quantitative data analysis applied for question (1) is done straightforward, made statistical tests and drawn conclusion. Case study approach, interpretation, developing explanation are included in quantitative data analysis for question (1). But investigating the students' outcome in the aspect of their perception and behavior when applying appropriate teaching strategies requires qualitative research method because it can be used to get the insider's perspective.

In the research process, sampling procedure is also applied to check the sample collected field works and observations are appropriate to research questions, predictive outcome and research objectives.

For any empirical study, the logic of the sample should be congruent with the overall logic of the study and of the research questions. The sample needs to be properly described and the basis for its selection made clear. In a quantitative study, the size and structure of the sample need to be described along with its logic, its method of selection and the claims made for its representation.

The procedure is arranged to collect the data across the full range of conditions indicated in the research question. This standard is important in both quantitative and qualitative

studies and in both theory testing and theory generating studies. It also influences the generalizability or transferability of the findings.

6.3 Triangulation

In the processes, peer debriefing and triangulation are also necessary to be made to check the validity of data. Different analysis can reach similar conclusions given whatever data categories have emerged. They can also be used to test the validity of the conclusion. The findings and interpretations are meaningful by testing them directly and personally against the achieved and still raw data.

Regarding the confirmability, it needs to determine its acceptability, dependability of inquiry and examine the product including data, findings, interpretations and recommendation. If there is internally coherent, the bottom line may be accepted.

The methods that establish credibility, transferability, dependability and confirmability are also applied. Reflective journal, daily schedule, personal diary and methodological log which consists of methodological decisions and accompanying rationales are also utilized to get assistance for achieving credibility of facts and data. To achieve credibility, prolonged engagement, peer debriefing, negative case analysis and referential adequacy member checks are conducted. To achieve transferability, thick descriptions are applied. To get dependability, dependability audit is performed. To get confirmability, the confirmability audit including audit trail is executed and all facts and aspects are recorded in the reflective journal.

7.0 Research Findings and Conclusion

7.0.1 What Is Happening In this Class

This method is used to assess the classroom environment influenced by social cultural factors.

The survey work for the students who just arrive in cities and their learning and perception before application of the new teaching stratrgies and curriculum. The group of students is regarded as class 1. 100 students participateed in the action research project. 100 responses received from them are classified and categorized to 15 groups. Student 1 refers to student group 1, student 2 refers to students group 2 etc. After implementing the new teaching strategies and curriculum for 6 months, the survey result is taken again. The students' responses after implementing the new strategies and curriculum is referred as class 2.
The comparison is made on the following aspects :-

(a) Students Cohesiveness (b) Teacher Support (c) Involvement (d) Investigation (e) Task Orientation (f) Co-operation (g) Equity

Mean

Class / Scale	Ethnic Minority Class (1)	Ethnic Minority Class (2)
(a)Student Cohesiveness	18.133	31.2
(b)Teacher Support	18.733	31.6
(c)Involvement	18.266	31.53
(d)Investigation	18.733	30.93
(e)Task Orientation	18.2	31.6
(f)Co-operation	18.33	31.26
(g)Equity	18.133	31.26

Standard Deviation

Class / Scale	Ethnic Minority Class (1)	Ethnic Minority Class (2)
(a)Student Cohesiveness	4,71	5.17
(b)Teacher Support	4.04	4.388
(c)Involvement	4.33	3.7
(d)Investigation	3.239	3.369
(e)Task Orientation	2.93	2.26
(f)Co-operation	3.29	2.12
(g)Equity	3.49	3.172

OBSERVATION ON MEANS

According to comparisons, the secondary class (2) ethnic minority Students who have done the study under new teaching strategies and currculum for more 6 months attain the higher score in student cohesiveness ,Teacher support, Involvement, Investigation, involvement, task orientation, co-operation and equity.

OBSVERVATION ON STANDARD DEVIATION

As time is going on, their absorption of the study differs among them. More diverse scales in Students Cohesiveness, Teacher Support and Investigation such depend on their individual academic ability. The lower diversity in involvement, equity scale, task orientation and co-operation .Lower diversed equity skill shows that although they were different in different backgrounds, the new teaching strategies and curriculum enables them to possess the equalized vocational ability.The lower diversed involvement, task orientation and co-operation shows their participation and perception were shaped to more positive toward integration into the cities education system with other students of different ethnical background.
.
7.0.2 Questionnaires on Teacher Interaction

Questionnaires on Teacher Interaction method is applied to focus on the nature and quality of interpersonal relationships between teachers and students.

The nature and quality of interpersonal relationship between teacher and students also depends on the cultural background of the students and teachers, The closer relationship is formed if the teacher and student have better understanding each other.

The scales that assess such relationships are leadership, understanding, uncertainty, admonishing, student responsibilities, dissatisfaction and strict.

Class \ Scale	Ethnic Minority Class(1)	Ethnic Minority Class(2)
Leadership	13.73	25.2
Understand	12.66	25.2
Uncertainty	20.86	10
Admonishing	19.2	18.2
Helpful/Friendly	13.8	22.13
Student Responsibility	13	25.66
Dissatisfaction	18	10
Strict	16	11

By examining the datas, the highest leadership and understand score is achieved by ethnic minority class (2)students who have lived in cities for six months. But the ethnic minority class (1) students who recently arrived in cities got the lowest score for leadership as they themselves are trying to understand the system rather than leading others. Their highest score in uncertainty scale is also the reflection of their perception on the new system. As the uncertainty score is lowest for ethnic minority class (2) students as they have lived for 6 months, reduces their attitude on uncertainty.

Regarding admonishing, the ethnic minority students who recently arrive cities do not understand well the new system thus they shows their behaviours that annoys the teachers.

Helpful / friendly score also depends on the understanding of social cultural system. In this aspect, ethnic minority class (2) students who have lived for significant time make more co-operation with the other students and teachers. Thus they score the higher points in Help / Friendly aspects.

But the ethnic minority class (1) students who just arrive in cities face the barrier of language and cultural difference causes them to keep quite and live alone rather than make friendship and co-operation with the others. Thus their score in helpful / friendly is the lower.

As ethnic minority class (2) students who have lived in cities for significant time accept more responsibility due to understanding of the cities classroom culture guides them to accept the lowest score because their lowest cultural competency causes them to achieve the lowest score in the student responsibility and to feel the freedom.

Dissatisfaction is the higher for ethnic minority class (1) students who just arrived in cities. This is the reflection of the language barrier, impact of the new social educational system and unfamiliar with the new cultural and educational system. They also feel that the teachers are strict due to their perception in the new system.

From the study, it highlights the point that cultural competency greatly promotes the students' understanding and perception on Teacher Interaction.

7.0.3 Constructivist Learning Environment Survey

Constructivist learning Environment Survey is used for assessing the condition to provide the meaningful learning of ethnic minority students in culturally different cities classrooms. The scale used are Teaching of the cities society, Learning to Speak Out, Learning to Learn and Learning to Communicate.

Class Scale	Ethnic Minority Class (1)	Ethnic Minority Class (2)
Learning the cities Society	23.8	24.13
Learning to Speak Out	23.2	23
Learning to Learn	22.8	23.53
Learning to Communicate	22.33	23.26

According to the datas, it is found that the scores for ethnic minority class (1) students who recently arrived in cities are higher in the aspects of Learning to Speak Out. They will have to put the more efforts to understand the cities system. Their score reflects their efforts and relationship with teacher.   In Learning to learn, learning in cities society and learning to

communicate scales, ethnic minority class (2) students who have lived in cities for significant time got the higher score and their time in cities , age and education backgrounds encourage them to put the more efforts in those aspects.

7.0.4 **My Class Inventory**

My Class Inventory method is applied to examine on how ethnic minority students' attitudes deteoriate during the transition period from rural education and cultural system to cities education and cultural system. The scale used are satisfaction, difficulties, competitiveness, friction and cohesiveness.

Class Scale	Ethnic Minority Class (1)	Ethnic Minority Class (2)
Satisfaction	10	12.66
Difficulties	11.066	7.2
Competitiveness	9.2	12
Friction	10.73	7,06
Cohesiveness	10	12.6

According to the datas, it is found that the satisfaction of ethnic minority class (2) student who have lived in cities for significant time is higher than that of ethnic minority class (1) students who recently arrive in cities. This may be due to the system of teaching and learning environment.

In the new teaching system and curriculum school, closer student- teacher relationship happens than before thus the difficulty, friction scores are lower. As the students can understand more in the teaching system and that motivates their effort to achieve the study, the competitiveness scale becomes higher. As they can understand more in the learning system, classroom environment and culture, they can co-operate more with the students from the other cultures, thus the students cohesiveness scale is higher.

7.0.5 **Individualized Classroom Environment Questionnaires (ICEQ) and Classroom Environment Scale (CES)**

Individualized Classroom Environment Questionnaires (ICEQ) and Classroom Environment Scale (CES) are applied to assess the ethnic minority students' perception on different teachers of different understanding in the cultural differences.

The scale used are personal, participation, independence, investigation, differentiation, task orientation, involvement and teacher support.

MEAN

Class Scale	Ethnic minority students taught by the teacher who has poor understanding in cultural difference difference in accordance with the old teaching strategies and curriculum	Ethnic minority students taught by teacher who has better understanding in cultural difference in accordance with the new teaching strategies and curriculum
Personalization	2.6	3.733
Participation	2.733	3.733
Independent	2.333	3.666

Investigation	2	3.6
Differentiation	2.133	3.4
Task Orientation	6.13	10.2
Involvement	9.4	14.53
Teacher Support	5	6,86

The datas show that the higher score on personalization, participation, independent, investigation, differentiation, task orientation, involvement and teacher support which are obtained by the ethnic minority students whom are taught by teacher who has the better understanding in cultural difference than the teacher who has poor understanding in the cultural difference.

The study also shows that to create the better classroom environment for the students, understanding the cultural difference is important for teachers.

7.1 Conclusion

The study has been done for the classroom environment of ethnic minority students influenced by the cultural difference in cities classroom.

Understanding the cross cultural issues and setting the appropriate strategies to overcome is important for a teacher to promote the better classroom environment for the students from different cultural backgrounds. As the age, past experience and the amount of the past cultural influences affect the transition from old social and cultural condition to the new one, determining the appropriate strategies to provide the best learning and classroom environment is the important aspect in the professional teaching of a teacher.

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APPENDIX (1)

Questionnaires and Collection of data
The questionnaires are provided on the following pages:

The questionnaires are asked for two conditions. In the first condition, they were attending the class which was taught by applying old teaching strategy. In the second condition, they were learning the lessons which were taught under new teaching strategy and new curriculum.

6.1.1 What Is Happening in this Class
ဒီအတန်းထဲမှာဘာဖြစ်နေသနည်း

(1) Please answer the questions for the class that you are attending at the moment.
သင်ယခုတက်ရောက်နေသောအတန်းနှင့်ပတ်သက်သောမေးခွန်းများကိုဖြေဆိုပါ။
(2)Please Circle only one of the words (Almost never, Seldom,Sometimes, Often, Almost always)
မေးခွန်းတခုစီအတွက်အောက်တွင်ပါရှိသော မပြုလုပ်သလောက်၊ ရံဖန်ရံခါ၊ တခါတရံ၊ မကြာခဏ၊ အမြဲတန်းလို
လို၊ စသောစာလုံးများမှတလုံးကိုမေးခွန်းတခုစီအတွက်ရွေးချယ်ပါ။

Students Cohesiveness 　　တခြားကျောင်းသားများနှင့်အတူပေါင်းသင်းဆက်ဆံမှု။

(A1)   I make friendships among the students in this class
　　ဒီအတန်းထဲရှိကျောင်းသားများနှင့်ကျွန်တော်မိတ်ဆွေဖွဲ့ သည်။
Almost Never 　　　Seldom 　　　Sometimes 　　Often 　　　Almost always
မပြုလုပ်သလောက် 　　ရံ ဖန် ရံ ခါ 　　တ ခါ တ ရံ 　　မကြာခဏ 　　အမြဲတန်းလိုလို

(A2)   I know other students in the class.
　　ဒီအတန်းထဲရှိကျောင်းသားများကိုကျွန်တော်သိရှိသည်။
Almost Never 　　　Seldom 　　　Sometimes 　　Often 　　　Almost always
မပြု လုပ်သလောက် 　　ရံ ဖန် ရံ ခါ 　　တ ခါ တ ရံ 　　မကြာခဏ 　　အမြဲတန်းလိုလို

(A3)   I am friendly to the members of this class.
　　ကျွန်တော်သည်ဒီအတန်းထဲရှိကျောင်းသားများကိုရင်းနှီးဖော် ရွေမှ ပြသည်။
Almost Never 　　　Seldom 　　　Sometimes 　　Often 　　　Almost always
မပြု လုပ်သလောက် 　　ရံ ဖန် ရံ ခါ 　　တ ခါ တ ရံ 　　မကြာခဏ 　　အမြဲတန်းလိုလို

(A4)   Members of the class are my friends.
　　အတန်းသားများသည်ကျွန်တော်၏သူငယ်ချင်းများဖြစ်ကြသည်။
Almost Never 　　　Seldom 　　　Sometimes 　　Often 　　　Almost always
မပြု လုပ်သလောက် 　　ရံ ဖန် ရံ ခါ 　　တ ခါ တ ရံ 　　မကြာခဏ 　　အမြဲတန်းလိုလို

(A5)   I work well with other class members.

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အခြားအတန်းသားများနှင့်ကျွန်တော်အလုပ်ကောင်းစွာလုပ်ကိုင်နိုင်သည်။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခဏ   အမြဲတန်းလိုလို

(A6)   I help other class members who are having troubles with their works.

တခြားကျောင်းသားများစာအခက်အခဲရှိတာကျွန်တော်ကူညီနိုင်သည်။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခဏ   အမြဲတန်းလိုလို

(A7)   Students in this class like me.

ဒီအတန်းထဲရှိကျောင်းသားများစာအခက်အခဲရှိတာကျွန်တော်ကူညီနိုင်သည်။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခဏ   အမြဲတန်းလိုလို

(A8)   In this class, I get the help from other students.

ဒီအတန်းထဲရှိတခြားကျောင်းသားများထံမှကျွန်တော်စာအကူအညီရရှိသည်။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခဏ   အမြဲတန်းလိုလို

Teacher Support ဆရာ၏ထောက်ကူမှု

(A9)   The teacher takes the personal interest in me.

ဆရာသည်ကျွန်တော်အပေါ် တဦးချင်းစိတ်ဝင်စားသည်။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခဏ   အမြဲတန်းလိုလို

(A10) The teacher goes out of his/ her way to help me.

ဆရာသည်သူ အစီအစဉ်တိုင်းသင်နေရာမှကျွန်တော်ကိုလာရောက်ကူညီသည်။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခဏ   အမြဲတန်းလိုလို

(A11) The teacher considers my feeling

ဆရာသည်ကျွန်တော်၏ခံစားမှုများကိုအမြဲထဲ့သွင်းစဉ်းစားသည်။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခဏ   အမြဲတန်းလိုလို

(A12) The teacher helps me when I have trouble with the works.

ဆရာသည်ကျောင်းစာအလုပ်များနှင့်ကွန်တော်အခက်အခဲတွေ့ တိုင်းကျွန်တော်ကိုကူညီသည်။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခဏ   အမြဲတန်းလိုလို

Page

(A13) The teacher talks with me.

ဆရာသည်ကျွန်တော်နှင့်စကားပြောသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A14) The teacher is interested in my problems.

ဆရာသည်ကျွန်တော်၏ပြဿနာရပ်များကိုစိတ်ဝင်စားသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A15) The teacher moves about the class to talk with me.

ဆရာသည်ကျွန်တော်နှင့်စကားပြောရန်အတန်းထဲတွင်ရွှေ့လျားသွားလာသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A16) The teachers' questions help me to understand.

ဆရာ၏မေးခွန်းများသည်ကျွန်တော်နားလည်စေဘို့ အကူအညီပေးသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

<u>Involvement အတန်းတွင်းဆောင်ရွက်မှု ကိစ္စရပ်များတွင်ကျွန်တော်ပါဝင်မှု</u>

(A17) I discuss the ideas in class.

ကျွန်တော်သည်အတန်းထဲတွင်တင်ပြဆွေးနွေးမှုပြုလုပ်သည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A18) I give my opinions during class discussions.

အတန်းတွင်းဆွေးနွေးမှုများတွင်ကျွန်တော်ထင်မြင်ချက်ပေးသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A19) The teacher asks me questions.

ဆရာသည်ကျွန်တော်ကိုမေးခွန်းများမေးသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A20) My ideas and suggestions are used during the classroom discussion.

အတန်းတွင်းဆွေးနွေးမှုများတွင်ကျွန်တော်ထင်မြင်ချက်များကိုအသုံးပြုသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

Page

(A21) I ask the teacher questions.
       ကျွန်တော် သည်ဆရာ ကိုမေးခွန်းများမေးသည်။
       Almost Never   Seldom   Sometimes   Often   Almost always
       မပြု လုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

(A22) I explain my ideas to other students.
       ကျွန်တော်သည်တခြားကျောင်းသားများကိုကျွန်တော်၏အကြံဉာဏ်များကိုရှင်းပြသည်။
       Almost Never   Seldom   Sometimes   Often   Almost always
       မပြု လုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

(A23) Students discuss with me how to go about solving problem.
       ပြဿနာနှင့်ပုစ္ဆာများဘယ်လိုဖြေရှင်းရမည်ဆိုတာတခြားကျောင်းသားများသည်ကျွန်တော်နှင့်ဆွေးနွေးသည်။
       Almost Never   Seldom   Sometimes   Often   Almost always
       မပြု လုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

(A24) I am asked to explain how I solve the problems.
       ပြဿနာနှင့်ပုစ္ဆာများဘယ်လိုဖြေရှင်းရမည်ဆိုတာတခြားကျောင်းသားများသည်ကျွန်တော်ကိုမေးမြန်းသည်။
       Almost Never   Seldom   Sometimes   Often   Almost always
       မပြု လုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

Investigation စူးစမ်းလေ့လာမှု

(A25) I carry out investigations to test my ideas.
       ကျွန်တော် ၏စိတ်ကူးများကိုစမ်းသပ်ရန်စူးစမ်းလေ့လာသည်။
       Almost Never   Seldom   Sometimes   Often   Almost always
       မပြု လုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

(A26) I am asked to think about the evidence for statement.
       ကျွန်တော်၏ဆိုလိုချက်အတွက်အထောက်အထားများကိုတွေးတောရန်အခြားသူများက
       ကျွန်တော့်ကို တောင်းဆိုကြသည်။

       Almost Never   Seldom   Sometimes   Often   Almost always
       မပြု လုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

(A27) I carry out investigations to answer the questions coming from discussions.
       ဆွေးနွေးမှုမှထွက်ပေါ် လာသောမေးခွန်းများကိုဖြေဆိုရန်ကျွန်တော်လေ့လာစူစမ်းမှု ပြုလုပ်သည်။
       Almost Never   Seldom   Sometimes   Often   Almost always
       မပြု လုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

(A28) I explain the meaning of students, diagrams and graphs.
       အဆိုပြု ချက်များပုံများဂရပ်များ၏အဓိပ္ပါယ်ကိုကျွန်တော်ရှင်းပြသည်။
       Almost Never   Seldom   Sometimes   Often   Almost always
       မပြု လုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

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(A29) I carry out investigation to answer the questions that puzzle me.
ကျွန်တော်၏စိတ်ကို ရှုပ်ထွေးစေသောမေးခွန်းများ၏အဖြေကိုကျွန်တော်စူးစမ်းရှာဖွေသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြု လုပ်သလောက်	ရံ ဖန် ရံ ခါ	တ ခါ တ ရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A30) I carry out investigations to answer the teacher's questions.
ဆရာ၏အမေးကိုဖြေဆိုရန်ကျွန်တော်စူးစမ်းလေ့လာသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြု လုပ်သလောက်	ရံ ဖန် ရံ ခါ	တ ခါ တ ရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A31) I find out answers to questions by doing investigations.
မေးခွန်းများ၏အဖြေများကိုကျွန်တော်စူးစမ်းလေ့လာရှာဖွေသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြု လုပ်သလောက်	ရံ ဖန် ရံ ခါ	တ ခါ တ ရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A32) I solve the problems by using information obtained from my own investigation.
ကျွန်တော်၏ကိုယ်ပိုင်စူး စမ်းမှု မှ ရရှိသောအချက်အလက်များကိုအသုံး ပြု၍ပြဿနာ၏
အဖြေကိုကျွန်တော်ရှာဖွေဖြေရှင်းသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြု လုပ်သလောက်	ရံ ဖန် ရံ ခါ	တ ခါ တ ရံ	မကြာခဏ	အမြဲတန်းလိုလို

Task Orientation လုပ်ငန်းတာဝန်များကိုဦးတည်မှု တဘက်သို့ဖောင်းပေးပြီးစီစဉ်ပုံ

(A33) Getting a certain amount of work done is important to me.
အလုပ်ကိုအတိုင်းအတာတစုံတခုသို့ ပြီးမြောက်အောင်ပြု ခြင်းသည်ကျွန်တော်အတွက်အရေးကြီး၏

Almost Never	Seldom	Sometimes	Often	Almost always
မပြု လုပ်သလောက်	ရံ ဖန် ရံ ခါ	တ ခါ တ ရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A34) I do as much as I set out to do.
လုပ်ဘို့ စီစဉ်ထားသလောက်ကျွန်တော်အလုပ်လုပ်၏။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြု လုပ်သလောက်	ရံ ဖန် ရံ ခါ	တ ခါ တ ရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A35) I knows the goal for this class.
ဒီအတန်း၏ဦးတည်ချက်လုပ်ငန်းတိုင်ကိုကျွန်တော်သိ၏

Almost Never	Seldom	Sometimes	Often	Almost always
မပြု လုပ်သလောက်	ရံ ဖန် ရံ ခါ	တ ခါ တ ရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A36) I am ready to start the class on time.
ဒီအတန်းကိုအချိန်မှီစဘို့ ကျွန်တော်အသင့်ရှိ၏။

Page

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A37) I know what I am trying to accomplish this class.

ဒီအတန်းကိုပြီးမြောက်ဘို့ ကျွန်တော်ဘာကိုကြို ပမ်းရမယ်ဆိုတာသိ၏။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A38) I pay attention during this class.

ဒီအတန်းတက်ရောက်နေစဉ်ကာလအတွင်းဂရုစိုက်မှုပြု၏

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A39) I try to understand the work in this class.

ဒီအတန်းထဲရှိလုပ်ငန်းများကိုကျွန်တော်နားလည်အောင်ကြိုးပမ်း၏။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A40) I know how much work I have to do.

အလုပ်ဘယ်လောက်ပြီးအောင်လုပ်ရမယ်ဆိုတာကျွန်တော်သိ၏။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

Co-operation   အများနှင့်အတူပူးပေါင်းဆောင်ရွက်ခြင်း

(A41) I co-operate with other students when doing assignment work.

ကျောင်းစာလေ့ကျင့်ခန်းများလုပ်ဆောင်ရာတွင်အခြားကျောင်းသားများနှင့်အတူကျွန်တော်ပူးပေါင်း
ဆောင်ရွက်၏

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A42) I share my books and resources with other students when doing assignments.

ကျောင်းစာလေ့ကျင့်ခန်းများလုပ်ဆောင်ရာတွင်ကျွန်တော်၏အထောက်အထားနှင့်ပစ္စည်းများ
ကို အခြားကျောင်းသားများနှင့်ဝေငှသုံးစွဲ၏။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A43) When I work in groups in this class, there is teamwork.

'Dtwef;xJwGiftkyfpkESifhuGsefawmftvkyfvkyfaomtcgtwlpkaygif;vkyfaqmifaomvkyfiefll;&dS.

Almost Never	Seldom	Sometimes	Often	Almost always
မပြုလုပ်သလောက်	ရံဖန်ရံခါ	တခါတရံ	မကြာခဏ	အမြဲတန်းလိုလို

(A44) I work with other students on project in this class.

ဒီအန်းထဲတွင်တခြားကျောင်းသားများနှင့်အတူ ပရိဂျက်အလုပ်ကိုကျွန်တော်လုပ်၏။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

(A45) I learn from other students in this class.

ဒီအတန်းထဲတွင်တခြားကျောင်းသားများမှတဆင့်ကျွန်တော်လေ့လာသင်ယူသည်။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

(A46) I work with other students in this class.

ဒီအတန်းထဲမှာတခြားကျောင်းသားများနှင့်အတူ ကျွန်တော်အလုပ်လုပ်သည်။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

(A47) I co-operate with other students in class activities.

အတန်း၏ဆောင်ရွက်လှုပ်ရှားမှု များမှာတခြားကျောင်းသားများနှင့်အတူကျွန်တော်ပူးပေါင်း လုပ်ဆောင်သည်။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

(A48) Students work with me to achieve the class goal.

အတန်း၏ရည်မှန်းချက်များရရှိရန်ကျောင်းသားများသည်ကျွန်တော်နှင့်ပူးပေါင်းလုပ်ဆောင်သည်။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

<u>Equity သာတူညီမျှမှု</u>

(A49)   The teacher gives as much attention to my questions as to other students' questions.

တခြားကျောင်းသားများ၏မေးခွန်းများကိုဆရာအာရုံစိုက်သလောက်ကျွန်တော့မေးခွန်းများကိုလည်း ဆရာအာရုံစိုက်၏။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

(A50) I get the same amount of help from the teacher as do other students.

တခြားကျောင်းသားများဆရာ၏အကူအညီကိုရသလောက်ကျွန်တော်လည်းဆရာ့ အကူအညီကိုရသည်။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

(A51) I have the same amount of say in this class as other students.

တခြားကျောင်းသားများကဲ့သို့ ကျွန်တော်လည်းအတန်းထဲမှာပြောဆိုခွင့်ညီမျှစွာရရှိသည်။

Almost Never   Seldom   Sometimes   Often   Almost always

မပြုလုပ်သလောက်   ရံ ဖန် ရံ ခါ   တ ခါ တ ရံ   မကြာခန   အမြဲတန်းလိုလို

Page

(A52) I am treated the same as other students in this class.

တခြားကျောင်းသားများကဲ့သို့ ကျွန်တော်လည်းအတန်းထဲမှာညီမျှစွာဆက်ဆံမှ ကိုရရှိသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြု လုပ်သလောက်	ရံ ဖန် ရံ ခါ	တ ခါ တ ရံ	မကြာခန	အမြဲတန်းလိုလို

(A53) I receive the encouragement from the teacher as other students.

ဆရာ၏အားပေးမှုကိုတခြားကျောင်းသားများကဲ့သို့ကျွန်တော်လည်းအတန်းထဲမှာညီမျှစွာရရှိသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြု လုပ်သလောက်	ရံ ဖန် ရံ ခါ	တ ခါ တ ရံ	မကြာခန	အမြဲတန်းလိုလို

(A54) I get the same opportunity to contribute to class discussions as other students.

တခြားကျောင်းသားများကဲ့သို့ကျွန်တော်လည်းအတန်းထဲမှာဆွေးနွေးပြောဆိုခွင့်ညီမျှစွာရရှိသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြု လုပ်သလောက်	ရံ ဖန် ရံ ခါ	တ ခါ တ ရံ	မကြာခန	အမြဲတန်းလိုလို

(A55) My work receives as much praises as other students' work.

တခြားကျောင်းသားများကဲ့သို့ကျွန်တော်လည်းလုပ်ကိုင်သောအလုပ်အပေါ် ဆရာ၏ချီးမွန်းမှုညီမျှစွာ ရရှိသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြု လုပ်သလောက်	ရံ ဖန် ရံ ခါ	တ ခါ တ ရံ	မကြာခန	အမြဲတန်းလိုလို

(A56) I get the same opportunity to answer questions as other students.

တခြားကျောင်းသားများကဲ့သို့ကျွန်တော်လည်းဆရာ၏မေးခွန်းအဖြေများကိုဖြေဆိုခွင့်ရရှိသည်။

Almost Never	Seldom	Sometimes	Often	Almost always
မပြု လုပ်သလောက်	ရံ ဖန် ရံ ခါ	တ ခါ တ ရံ	မကြာခန	အမြဲတန်းလိုလို

6.1.2 Questionnaires in Teacher Interaction ဆရာ၏ဆက်ဆံမှု နှင့်ဆက်နွယ်သောမေးခွန်းများ

Instruction ညွှန်ကြားချက်

(1) Please answer the questions for the class that you are attending at the moment.
သင်ယခုတက်ရောက်နေသောအတန်းနှင့်ပတ်သက်သောမေးခွန်းများကိုဖြေဆိုပါ။

(2) Please circle only one of the numbers 0,1,2,3,4
၁ ၂ ၃ ၄ ၅ စသောစာလုံးများမှတလုံးကိုသာရွေးချယ်ပါ
If you circle 0,1, your answer is closer to never and if you circle 3,4 , your answer is closer to always.
အကယ် ၍သင်သည် ၀၊ ၁ စသည်တို့ ကိုရွေးပါကသင့်အဖြေသည် �’ဘယ်တော့မှမလုပ်နှင့်နီးစပ်ပြီး ၃၊ ၄ စသည် တို့ ကိုရွေးပါကသင့်အဖြေသည် အမြဲတန်းလုပ်သည်နှင့်နီးစပ်၏

Sr စဉ်	QUESTIONS မေး ခွန်း များ	Never �’ဘယ်တော့မှ မလုပ်			Always အမြဲတန်း လုပ်သည်	
B1	This teacher talks enthusicatically about his/ her subject. ဒီဆရာသည်သူ့ ဘာသာရပ်နှင့်ပတ်သက် ၍အင်တိုက်အားတိုက်ပြောဟောသည်။	0	1	2	3	4
B2	This teacher trusts us. 'Dq&mo!f uGsefawmfwdk htayg f,Hk}u!fo!f?	0	1	2	3	4
B3	This teacher seems uncertain. 'Dq&m}u!f h&wmaocsmyHkrayg f?	0	1	2	3	4
B4	This teacher gets anger unexpectedly. 'Dq&mo!frarsmfvifhbJa'goxGuf.?	0	1	2	3	4
B5	This teacher explains things clearly. 'Dq&mo!ft&mrsm;udk&Sif;vif;pGmoif}um;jyoEdkif.?	0	1	2	3	4
B6	If we won't agree with this teacher, we can talk about it. 'Dq&mESifhoabmrwlygutJ'Dta}umif;udkuGsefawmf တို့ ပြောဆိုနိုင်၏။	0	1	2	3	4
B7	This teacher is hesitant. ဒီဆရာသည်တုန့် ဆိုင်းနေ၏။ချီတုံချတုံဖြစ်နေ၏	0	1	2	3	4
B8	This teacher gets angry quickly. ဒီဆရာသည်လျှင်မြန်စွာဒေါသထွက်၏	0	1	2	3	4
B9	This teacher holds our attention. ဒီဆရာသည်ကျွန်တော်တို့ ၏အာရုံစူးစိုက်မှု ကိုထိန်းသိမ်းနိုင်၏	0	1	2	3	4
B10	This teacher is willing to explain things again. 'Dq&mo!ft&mrsm;udkxyfrH&Sif;vif;vdkpdwf&Sd.?	0	1	2	3	4
B11	This teacher acts if she /he does not know what to do. 'Dq&mo!folbmvkyf&rSef;rodo!f hykHHpHJHjykvkyf.?	0	1	2	3	4
B12	This teacher is too quickly to correct us if we break a rule. ကျွန်တော်တို့ စည်းကမ်းဖေါက်ဖျက်ပါကဒီဆရာသည်ကျွန်တော် တို့ ကိုလျှင်မြန်စွာပြ ပြင်သည်။	0	1	2	3	4
B13	This teacher knows every thing that goes on in the classroom. 'Dq&mo!ftwef;xJrSmjzpfysuforSstvHk;phkudkodo!f?	0	1	2	3	4
B14	If we have something to say, this teacher will listen. ကျွန်တော်တို့ တစုံတခုပြောဘို့ ရှိကဒီဆရာနားထောင်၏။	0	1	2	3	4

B15	This teacher lets us boss her/ him around. 'Dq&mo!fol hudkuGsefawmfwdk h!GSef}um;wmudkvufcHcGifhjy ko!f?	0	1	2	3	4
B16	This teacher is impatient. 'Dq&mo!fpdwfr&S!fyg?	0	1	2	3	4
B17	This teacher is good teacher. 'Dq&mo!fq&maumif;jzpf.?	0	1	2	3	4
B18	This teacher realizes when we don't understand. ကျွန်တော်တို့ နားမလည်သောအခါဒီဆရာသည်အဲဒီအကြောင်းကို သဘောပေါက်သည်။	0	1	2	3	4
B19	This teacher is not sure what to do when we fool around. 'Dq&mo!fuGsefawmfwdk hol hudkvS!fhywfaomtcgolbmvkyf& မည်မသိဖြစ်၏။	0	1	2	3	4
B20	It is easy to pick a fight with this teacher. 'Dq&mESifhapm'uwuf!if;cHk&efvG,ful.?	0	1	2	3	4
B21	This teacher acts confidently. 'Dq&mo!frdrdudk,fudk,Hk}u!frS ktjy!fhESifhaqmif&Gufo!f?	0	1	2	3	4
B22	This teacher is patient. 'Dq&mo!fpdwf&S!f.?	0	1	2	3	4
B23	It is easy to fool out of this teacher. 'Dq&mudkvS!f hywft&L;vkyf&efvG,ful.?	0	1	2	3	4
B24	This teacher is sarcastic. 'Dq&mo!f&Sm;yg;aomolrsdK;jzpf.?	0	1	2	3	4
B25	This teacher helps us with our work. 'Dq&mo!fuGsefawmfwdk h.tvkyfrsm;udkul!Do!f?	0	1	2	3	4
B26	We can decide something in this teacher's class. 'Dq&m.twef;xJwGifuGsefawmfwdk hwckckqHk;jzwfEdkif.?	0	1	2	3	4
B27	This teacher thinks that we cheat. ကျွန်တော်တို့ ခိုးချသည်ဟုဒီဆရာထင်၏။	0	1	2	3	4
B28	This teacher is strict. 'DDq&mo!fodyfwdus.?	0	1	2	3	4
B29	This teacher is friendly.	0	1	2	3	4

	'Dq&mo!f&if;EDS;azg f a&G.?					
B30	We can influence this teacher. "Dq&mtayg fuGsefawmfwdkh}oZmvSGrf;rdk;Edkif.	0	1	2	3	4
B31	This teacher thinks that we don't know anything. ကျွန်တော်တို့ �‌ဘာမှမသိဟူ၍ဒီဆရာထင်၏။	0	1	2	3	4
B32	We have to be silent in this teacher's class. ဒီဆရာ၏အတန်းတွင်ကျွန်တော်တို့ တိတ်တိတ်ဆိတ်ဆိတ်နေရမည်။	0	1	2	3	4
B33	This teacher is some one we depend on ' ဒီဆရာသည်ကျွန်တော်တို့ အားထားမှီခိုစရာဖြစ်၏။	0	1	2	3	4
B34	This teacher let us fool around in the class. 'Dq&mo!fuGsefawmfwdk hudktwef;xJrSmvS!f hywft&l;vkyfae.?	0	1	2	3	4
B35	This teacher puts us down. 'Dq&mo!fuGsefawmfwdk hudkt&L;vkyf.?	0	1	2	3	4
B36	This teacher's tests are hard. 'Dq&m.prf;oyfrS krsm;o!fcufcJ.?	0	1	2	3	4
B37	This teacher has a sense of humor. 'Dq&mo!f[moqefjyD;aysmf&Gifwwf.?	0	1	2	3	4
B38	This teacher lets us get away with a lot in class 'Dq&mo!fuGsefawmfwdk hudktwef;wGif;vkyfp&rsm;pGmrS ကင်းဝေးစေ၏။	0	1	2	3	4
B39	This teacher thinks that we can't do things well. ကျွန်တော်တို့ ‌ကောင်းကောင်းမလုပ်နိုင်လှူ‌ဒီဆရာယူဆ၏။	0	1	2	3	4
B40	This teacher standards are very high. 'Dq&m.tqifhtwef;rsm;o!ftvGefjrifh.?	0	1	2	3	4
B41	This teacher can take a joke. 'Dq&mo!f&Dp&marmp&mjy kvkyfEdkif.?	0	1	2	3	4
B42	This teacher gives us a lot of free time in class. 'Dq&mo!fuGsefawmfwdk hudktwef;xJrSmtm;vyfcsdefrsm;pGmay;.?	0	1	2	3	4
B43	This teacher seems dissatisfied.	0	1	2	3	4

	'Dq&m}u!f h&wmrausreyfjzpfyHk&o!f?					
B44	This teacher is severe when marking papers ဒီဆရာသည်အမှတ်ပေးရာမှာအလွန်တင်းကြပ်ကြသည်။	0	1	2	3	4
B45	This teacher class is pleasant. 'Dq&m.twef;o!faysmf&GSifzG,faumif;o!f?	0	1	2	3	4
B46	This teacher is lenient. 'Dq&mo!fp!f;urf;t&mwGifavSsm h&davSsm h&JJjzpfo!f?	0	1	2	3	4
B47	This teacher is suspicious. 'Dq&mo!fwjcm;w^D;^D;udkfoHo,tjrJ&dSo!f?	0	1	2	3	4
B48	We are afraid of this teacher. 'Dq&mudkuGsefawmfwdk ha}umufo!f?	0	1	2	3	4

6.1.3 Constructivist Learning Environment Survey (CLES)
စာပေလေ့လာမှုပါတ်ဝန်းကျင်ကိုဖွဲ့ စည်းတည်ဆောက်မှု နည်းလမ်းအသုံးချ မှု နှင့်ပတ်သက်သောစစ်တမ်းကောက်ချက်

Constructivist Learning Environment Survey is used for assessing the condition to provide the meaningful learning of ethnic minority students in culturally different cities classroom.

Sr စဉ်	QUESTIONS မေး ခွန်း များ	Almost Never �’ဘယ် သော ခါ မှ	Seldom ရံ့ဖန်ရံခါ	Sometime တခါတရံ	Often မကြာခန	Almost Always အမြဲ တန်းလို လို
	Learning about cities Society & Language မြို့ ပြ၏မှု ပါတ်ဝန်းကျင်နှင့်ဘာသာစကားကို လေ့လာမှု					
C1	I learn about cities Society, custom and language ကျွန်တော်သည်မြို့ ပြ ၏မှုလူမှု အ ဖွဲ့ အစည်း၊ဓလေ့ထုံးစံနှင့်ဘာသာစကား တို့ ကိုလေ့လာသည်။	1 5	2	3	4	
C2	My new learning starts with problem about the cities system outside the school. ကျွန်တော်၏စာသင်ခန်းပြင်ပလေ့လာ မှု သည်ပြဿနာများနှင့်စတင်ခဲ့သည်။	1 5	2	3	4	

C3	I learn how understanding of cities system can be part of my out of school life. မြို့ပြ၏စံနစ်ကိုနားလည်အောင်မည်ကဲ့ သို့ လေ့လာရမည်ဟူသောအချက်သည်ကျွန်တော်၏ စာသင်ခန်းပြင်ပလေ့လာမှု ၏တစိတ်တဒေသဖြစ်သည်။	1 5	2	3	4
C4	I get a better understanding of life outside of school in cities. မြို့ပြတွင်ကျောင်းစာသင်ခန်းပြင်ပရှိဘဝကိုကျွန် တော်ပိုမိုကောင်းမွန်စွာနားလည်သိရှိသည်။	1 5	2	3	4
C5	I learn the interesting things about the world outside of school in cities. မြို့ပြ တွင်ကျောင်းစာသင်ခန်းပြင်ပရှိစိတ်ဝင် စားစရာများအကြောင်းကိုကျွန်တော်လေ့လာသည်။	1 5	2	3	4
C6	What I learn has nothing to do with my outside school life ကျွန်တော်လေ့လာထားသမျှသည်စာသင်ခန်းပြင်ပရှိ လက်တွေ့ ဘဝနှင့်တခြားစီဖြစ်၏။	1 5	2	3	4
C7	<u>Learning to speak out</u> စကားပြောရန်လေ့လာမှု It is OK for me to ask the teacher why do I have to learn it �‌ာအတွက်ကြောင့်ကျွန်တော်ဒါကိုလေ့လာရသလဲဆို တာကိုဆရာ့ကိုမေးရန်ကျွန်တော်အတွက်အဆင်ပြေ သည်။	1 5	2	3	4
C8	It is OK for me to question the way I am being taught ကျွန်တော်ကိုသင်ကြားနေသောသင်ကြားပုံသင်ကြား နည်းကိုမေးမြန်းရန်ကျွန်တော်အတွက်အဆင်ပြေသည်။	1 5	2	3	4
C9	It is OK for me to complain about teaching activities that are confusing. ကျွန်တော့်ကိုရှုပ်ထွေးစေသောသင်ကြားမှုဆိုင်ရာ လှုပ်ရှားမှုများကိုမေးမြန်းရန်ကျွန်တော့်အ တွက်အဆင်ပြေသည်။	1 5	2	3	4
C10	It is OK for me to complain about any thing	1 5	2	3	4

	that prevents me from learning. ကျွန်တော့်၏လေ့လာမှု ကိုအဟန့်အတား ပြု နေသောအရာများကိုကျွန်တော်စောဒကတက်နိုင် သည်။	5			
C11	It is OK for me to express my opinion ကျွန်တော်၏ဆိုလိုချက်များကိုဖော်ပြ ရန်အ ဆင် ပြေသည်။	1 5	2	3	4
C12	It is OK for me to speak up for my right ကျွန်တော်ရသင့်သောအခွင့်အရေးအတွက်ပြောဆိုရန် ကျွန်တော်အတွက်အဆင်ပြေသည်။	1 5	2	3	4
C13	<u>Learning to learn</u> _<u>စာပေလေ့လာရေးအတွက်လေ့လာမှု</u>_ I help the teacher to plan what I am going to learn. ကျွန်တော်�‌ဘာလေ့လာရမည်ဆိုတာကိုဆရာ ပြင်ဆင်နိုင် ဘို့ ကျွန်တော်အကူအညီ ပေးသည်။	1 5	2	3	4
C14	I help the teacher to decide how well I am learning. ကျွန်တော်ဘယ်လောက်ကောင်းစွာလေ့လာ နိုင်သည်ဆို တာဆရာဆုံးဖြတ်နိုင်ရန်ကျွန်တော်အကူအညီ ပေးသည်	1 5	2	3	4
C15	I help the teacher to decide what activities are best for me. မည်ကဲ့သို့ သောလုပ်ငန်းဆောင်တာများသည် ကျွန်တော့ အတွက်အကောင်းဆုံးဖြစ်သည်ကို ဆရာဆုံးဖြတ်ရန်ကျွန်တော်ကူညီသည်။	1 5	2	3	4
C16	I help the teacher to decide which activities I do. ဘယ်လိုလုပ်ငန်းဆောင်တာတွေ့ကျွန်တော်လုပ်ရမည်ဆို တာဆရာဆုံးဖြတ်နိုင်ဘို့ ကျွန်တော်ကူညီသည်။	1 5	2	3	4
C17	I help the teacher to decide how much time I spend on learning activities. စာပေလေ့လာမှု များတွင်အချိန်မည်မျှကျွန်တော်ပေး ရမည် ဆိုတာဆရာဆုံးဖြတ်နိုင်စေရန်ကျွန်တော်ကူ ညီသည်။	1 5	2	3	4
C18	I help the teacher to decide which activities I do out side school ကျောင်းစာသင်ခန်းပြင်ပတွင်�’ဘယ်လိုလုပ်ငန်းဆောင် တာတွေ့ကျွန်တော်လုပ်ရမည်ဆိုတာဆရာဆုံးဖြတ်နိုင် ဘို့ ကျွန်တော်ကူညီသည်။	1 5	2	3	4
C19	<u>Learning to communicate</u> _<u>ဆက်သွယ်ရေးအတွက်လေ့လာမှု</u>_ I get the chance to talk to other students.	1	2	3	4

		Seldom	Sometime	Most of the time
	တခြားကျောင်းသားများနှင့်စကားပြောရန်ကျွန်တော်အ ခွင့်အရေးရသည်။	1 5	2	3	4

		Seldom			
C20	I talk with other students about how to solve the problem. ပုစ္ဆာ အဖြေဘယ်လိုရှာဖွေရမည်အကြောင်းနှင့်ပတ် သက် ၍တခြားကျောင်းသားများနှင့်ကျွန်တော် စကားပြောသည်။	1 5	2	3	4
C21	I explain my understanding to other students. ကျွန်တော်နားလည်တာကိုတခြားကျောင်းသားများကို ရှင်းပြသည်။	1 5	2	3	4
C22	I ask other students to explain their ideas. တခြားကျောင်းသားများ၏စိတ်ကူးစိတ်သန်းများကိုကျွန် တော်မေးမြန်းသည်။	1 5	2	3	4
C23	Other students ask me to explain my ideas. ကျွန်တော့်၏စိတ်ကူးစိတ်သန်းများကိုရှင်းပြရန်တခြား ကျောင်းသားများကကျွန်တော့်ကိုတောင်းဆိုကြသည်။	1 5	2	3	4
C24	Other students explain their ideas to me. တခြားကျောင်းသားများသည်သူတို့ ၏စိတ်ကူး စိတ်သန်း များကိုကျွန်တော့ ကိုရှင်း ပြကြ သည်။	1 5	2	3	4

6.1.4   My   Class   Inventory   Method

ကျွန်တော်တက်ရောက်နေသောအတန်းအကြောင်းအခြေခံသောပညာ ရေးလေ့လာမှု နည်းလမ်း

My Class Inventory Method is applied to study the attitude of ethnic minority students during the transition of rural classrooms to cities classrooms.

| Sr
စဉ် | Questions

မေးခွန်းများ | Seldom

မရှိသလောက် | Sometime

တခါတရံ | Most of the time
များသော အားဖြင့် |
|---|---|---|---|---|
| 1 | <u>Satisfaction(*ကျေနပ်မှု*)</u> When I begin the class in cities, I understand what teacher told me. မြို့ ပြတွင်အတန်းစတက်သောအခါဆရာပြောတာ တွေ့ကိုကျွန်တော်နားလည်သည်။ | 1 | 2 | 3 |
| 2 | I understand the lessons throughly given by teacher. | 1 | 2 | 3 |

	ဆရာပေးသောသင်ခန်းစာများကိုကျွန်တော်လုံးစွဲပတ်စွဲ နားလည်သည်။			
3	I can complete the home works which ever given by teacher. ဆရာပေးသောအိမ်စာများကိုကျွန်တော်ပြည့်စုံနိုင်သည်။	1	2	3
4	I am satisfied with my lessons in classroom. အတန်းထဲမှာစာလေ့လာရတာကိုကျွန်တော်ကျေနပ်သည်။	1	2	3
5	I find teacher give a lot of help to me. ဆရာသည်ကျွန်တော့်ကိုအကူအညီများစွာပေးတာကိုတွေ့ ရသည်။	1	2	3
6	**_Difficulty_** (အခက်အခဲ) I find that most of the lessons and teaching system are strange to me. သင်ခန်းစာအများစုနှင့်သင်ကြားပုံနည်းစံနစ်များသည်ကျွန် တော့်အတွက်အထူးအဆန်းဖြစ်စေသည်။	1	2	3
7	I use to worry about I can not cope with the study. စာကိုလုံးစွဲပတ်စွဲမလေ့လာရရှိမည်ကိုကျွန်တော်ပူပန် သည်။	1	2	3
8	I find that a lot of pressure is exerted on me to absorb the study. စာကိုစွဲမြစွာရယူရန်ဖိအားများစွာပေးနေသလိုခံစားရ၏။	1	2	3
9	I find that my language is not enough to understand the lessons. သင်ခန်းစာများကိုနားလည်စေရန်ကျွန်တော့်မှာဘာသာစ ကားလုံလောက်မှု မရှိဟုခံစားရ၏။	1	2	3
10	I find that the contents of lessons and arrangements are totally different from my study in Burma. သင်ခန်းစာများနှင့်စီစဉ်ပုံတို့ သည်မြန်မာနိုင်ငံတွင်လေ့လာ သင်ကြားခဲ့သောစာများနှင့်လုံးဝခြားနား၏။	1	2	3
11	**_Competitiveness_** ယှဉ်ပြိုင်မှ I try to achieve the same mark with my classmates. တခြားကျောင်းသားများနှင့်တူညီသောအမှတ်ရရန်ကျွန် တော်ကြိုးစားသည်။	1	2	3
12	I participate in the discussions like as others. တခြားသူများကဲ့သို့ ဆွေးနွေးမှု များတွင် ကျွန်တော် ပါဝင်သည်။	1	2	3
13	I try to talk with teacher in the classroom like as others. တခြားသူများကဲ့သို့ အတန်းထဲတွင်ဆရာနှင့်စကားပြောရန်	1	2	3

		Almost Never	Seldom	Sometime
	ကျွန်တော်ကို ုပမ်းသည်။			
14	I feel unhappy whenever I get the lower score than other. တခြားသူများလောက်အမှတ်မရတိုင်းကျွန်တော်စိတ်မချမ်း မသာဖြစ်ရသည်။	1	2	3
15	I try to submit assignment faster than others. တခြားသူများထက်လျှင်မြန်စွာလေ့ကျင့်ခန်းနှင့်တင်ပြမှု များ ကိုပြီးစီးရန်ကျွန်တော်ကို ုးစား၏။	1	2	3
16	*Friction* (အနှောင့်အစွန်း) I feel lonely in my classroom. အတန်းထဲတွင်တဦးတည်းအထီးကျန်ဖြစ်နေသလိုခံစားရ၏။	1	2	3
17	I feel inferior in the classroom. အတန်းထဲတွင်သိမ်ငယ်နေသလိုခံစားရ၏။	1	2	3
18	Other students in the classroom make friend with me. အတန်းထဲရှိတခြားကျောင်းသားများသည်ကျွန်တော့်ကို မိတ်ဆွေဖွဲ့ ကြသည်။	1	2	3
19	I feel teacher ever looks me. ကျွန်တော့်ကိုဆရာကအမြဲကြည့်နေသလိုခံစားရသည်။	1	2	3
20	I feel there is no assistance to help my study problems. ကျွန်တော်၏စာပေလေ့လာမှု ပြဿနာများတွင်အကူအညီ ဘယ်ကမှမရသလိုခံစားရသည်။	1	2	3
21	*Cohesiveness* (စုပေါင်းပါဝင်မှု) I can make friendships with other students. ကျွန်တော်သည်တခြားကျောင်းသားများနှင့်မိတ်ဆွေ ဖွဲ့ သည်။	1	2	3
22	I can understand what they are talking . သူတို့ ဘာတွေပြောနေတယ်ဆိုတာကျွန်တော်နားလည် သည်။	1	2	3
23	I can participate in the group work. အုပ်စုလုပ်ငန်းများတွင်ကျွန်တော်ပါဝင်သည်။	1	2	3
24	I can provide my ideas. ကျွန်တော့်၏စိတ်ကူးစိတ်သန်းများကိုဖြည့်ဆည်းပေးသည်။	1	2	3
25	I can accept others' ideas. တခြားသူများ၏စိတ်ကူးနှင့်အကြံ ဉာဏ်တို့ ကိုကျွန်တော် လက်ခံသည်။	1	2	3

6.1.5 Individualized Classroom Environment Questionnaires (ICEQ) & Classroom Environment Scale (CES)

Sr	QUESTIONS	Almost Never	Seldom	Sometime	Often	Almost Always

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စဉ်	မေး ခွန်း များ	ဘယ် သော ခါ မှ	ရံဖန်ရံခါ	တခါတရံ	မကြာခန	အမြဲ တန်းလို လို
E1	Teacher understands how to provide the assistance to me ကျွန်တော်ကိုမည်ကဲ့သို့ ကူညီရမည်ကိုဆရာသိ၏	1	2	3	4	5
E2	I get the chance to equally participate in the class task together with students from other culture. တခြားဘာသာယဉ်ကျေးမှု နောက်ကြောင်းမှကျောင်း သားများနှင့်တန်းတူအတန်းတွင်းလုပ်ငန်းရပ်များတွင် ကျွန်တော်ပါဝင်ခွင့်ရရှိသည်။	1	2	3	4	5
E3	I can independently solve the problem given in the class. အတန်းထဲတွင်ပေးသောပုစ္ဆာ များကိုကျွန်တော့ပါသာ လွတ်လပ်စွာဖြေရှင်းနိုင်သည်။	1	2	3	4	5
E4	I get the chance to detailly study in the lesson given by teacher. ဆရာပေးသောသင်ခန်းစာများကိုအသေးစိတ်လေ့လာ ဘို့ အခွင့်အရေးရရှိသည်။	1	2	3	4	5
E5	I know right or wrong in the problem. ပြဿနာတွင်�’ဘာမှန်သည်မှားသည်ကိုကျွန်တော်သိ သည်။	1	2	3	4	5
E6	In the class, getting a certain amount of work done is important to me. အတန်းထဲတွင်အလုပ်ကိုအတိုင်းအတာတစ်ခုထိပြီး စီး ရန်သည်ကျွန်တော့အတွက်အရေးကြီးသည်။	1	2	3	4	5
E7	I know goals for this class. 'Dtwef;.^D;w!fcsufudkuGsefawmfodo!f?	1	2	3	4	5
E8	I try to understand the work in this class. ဒီအတန်းထဲတွင်အလုပ်ကိုနားလည်ရန် ကျွန်တော်ကြိုး စားသည်။	1	2	3	4	5
E9	Teacher asks me to explain how I solve the problem. ကျွန်တော်ပုစ္ဆာဘယ်လိုဖြေရှင်းကြောင်းဆရာကျွန် တော့ကိုမေးမြန်းသည်။	1	2	3	4	5
E10	I can give my opinion during the class discussion and teacher gives me the chance. အတန်းတွင်းဆွေးနွေးမှု များတွင်ကျွန်တော်၏ထင်မြင် ချက်များကိုတင်ပြလိုဆရာကလည်းအခွင့်အလန်း ပေးသည်။	1	2	3	4	5

E11	Although I am strange with the class and keep quite, teacher asks me questions. အတန်းနှင့်စိမ်းနေသေးသဖြင့်ကျွန်တော်တိတ်ဆိတ်စွာ နေသော်လည်းဆရာသည်ကျွန်တော့်ကိုမေးခွန်းများမေး မြန်းသည်။	1	2	3	4	5
E12	Teacher does not overlook me in the discussions although I am from different cultural background. ကျွန်တော်သည်တခြားဘာသာယဉ်ကျေးမှု မှလာ သော် လည်းဆွေးနွေးမှု များတွင်ဆရာကကျွန်တော့် ကိုချန်မထားခဲ့။	1	2	3	4	5
E13	Teacher takes a personal interest in me although I am from Non English Speaking Background. ကျွန်တော်သည်အင်္ဂလိပ်ဘာသာကိုမိခင်ဘာသာအဖြစ် မပြောဆိုသောနောက်ကြောင်းမှလာသော်လည်းဆရာ ကတဦးချင်းအနေဖြင့်စိတ်ဝင်စားသည်။	1	2	3	4	5
E14	The teacher understands my cultural difference and help me when I face the trouble with the problems due to understanding of different language ကွဲပြားခြားနားသောဘာသာစကားကိုနားလည်မှု ကြောင့်ပြဿနာများကြုံ ရသော်လည်းဘာသာယဉ် ကျေးမှု ကွဲ ပြားမှု ကိုနားလည်သောဆရာကကျွန်တော့် ကိုအကူအညီပေးသည်။	1	2	3	4	5