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FACTORS AFFECTING IMPLEMENTATION OF STUDENT CENTERED METHOD IN MATHEMATICS CLASSES: THE CASE OF OTONA SECONDARY SCHOOL GRADE 10, WOLAYTA ZONE, SNNPR REGION.

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ABSTRACT

The purpose of this study was to explore factors that affecting the implementation of effective active learning method in Otonasecondary school focused on grade 10Mathematics class. The total population of the study was 3 Mathematics teachers and 30 students from two sections (A&B) of grade 10 and school director. Teachers were selected by use of purposive sampling technique whereas the students were selected by using systematic sampling technique from each section of grade 10.The main instruments of data collection for this study were close ended questioners, focused interview and structured classroom observation check list. Then the data were gathered through these instruments and were presented, analyzed and interpreted by using a mixture of quantitative and qualitative data descriptive method using percentage in table and qualitative explanation. In conclusion the findings indicated the factors that impacted implementation of student centered method related to teachers were, suitability of classroom conditions: like a large number of students in a class, and traditional classroom sitting arrangements were the major one. As a result teachers do not have perception, interest persistence to apply active learning method in the class. On account of lack of teacher's initiation to motivate and encourage their students the student's participation was very low. In general the study showed that the teachers dominated the classroom activities by making students passive listeners although only 33% of teachers have an effort to practice student centered method it is not sufficient. Because this 33% uses only one kind of technique of active learning method namely answer and question method. Consequently, giving short term training for teachers in service about how to implement student centered method, building additional classroom to balance the number of students in a classroom, fulfilling different facilities and giving awareness for the students about the importance of student centered method highly recommended in order to apply student centered method in mathematics class.

Keywords: Approach, Method, Techniques, Implementation, Practice, Perception, Active learning, Student centered.

Subject

There are 243 students in the grade 10 in the year of study, 2017 in Otona secondary school, Wolaita Zone, SNNPR Region. Using systematic sampling technique 15 students from section 10A, 15 students from section 10B are selected. In addition to this three mathematics teachers and the school principal are also selected. Consequently, 30 grade 10 students, 3 mathematics teachers, and the school principals constitute the subject of the study.

1. INTRODUCTION

This research was designed to study the major factors that affect the implementation of student centered method of Otona secondary school at grade 10 Mathematics class in southern nation's nationalities and people's regional state, wolaita zone, Wolaita sodo town. For successfulness of the study,this chapter dealt with back ground of the study,statement of the problem, objectives of the study, significance of study, delimitation of the study, and limitations of the study.

1.1 Back ground of the study

Different philosophers and educators have given different definitions about education from their own point of view. According to Biadeglign (2010) education is training, instruction developing by planned methods. Education theories primarily fall into two methods such as teacher centered method and student centered method. The new approach to education often called student centered/ learner centered education. Learner centered instruction is that provides the experience for learners to develop the independent and critical learning skills necessary for problem solving. As Leu(2000) active learning is a broad strategy that includes such techniques as substituting active learning exercises for lecture holding students responsibility for the materials that have not been explicitly discussed in class assigning open ended problems and problem requiring , critical or creative thinking that cannot be solved by following text examples involving students in stimulating and role play. As Biadeglign (2010) while teachers are an authority figure in the student centered approach teachers and students play an important equal activates in the learning process. The teacher secondary role is to coach and facilitate student learning and over all comprehension of material.

As Chall (2000) the teacher is seen as a facilitator of learning were the students are permitted to move around freely, using time is flexible rather than structured and evaluation compare learners to them rather with a de-emphasis.

To strengthen the above ideas, Taye (2000) stated that effective active learning requires the use of different

methodologies and strategies to meet the needs of the learners.

To apply this method the education and training policy of Ethiopia has given due attention to strengthen the individual's problem solving capacity at all levels (MOE 2002). But there is a big gap between policy and application.Thisbegs the questionof whether student centered classroom are an effective alternative to traditional classroom teaching method and what effect this teaching method has on student attitude and achievement.

Thus the research was conducted to identify factors that hinder the implementation of student centered method in Otonasecondaryschool grade 10thMathematics class.

1.2 Statement of the problem

Active learning method is an important approach of mathematics teaching because it focuses on communicative teaching learning process.More over active learning method is very important to develop basic skills of mathematics such as measuring, computing, logical reasoning and problem solving.

Brein et al (2005) stated that active learning implies the development of community learners to communicate in the target mathematics in order to share experience,related ideas and questions. In addition above idea Harmer (2005:53) stated increasing and directing student'smotivation is one of the teacher's responsibilities, we cannot responsible for all of ours. To strengthen the above ideas Leu (2000)stated that the goal of active learning is how to find out and useinformation, that students learn and make the worldmeaningful rather than just memorize facts that may have no connection with their lives.

Many contemporary educatorsargue that if students are quite and do not take part in classroom activity;it is extremely difficult for teachers to assess the extent and depth of theirstudent's understanding so as to support for learning (Pollard 2003:218).Therefore knowing how and when student centered techniques are most effective will give teachers more confidence in using them in their classrooms the current education and training policy of Ethiopian (MoE, 2002) is guided by a new view of education that promotes active learning (ICDR, 1999). It is characterized by student – teacher interaction. In this approach four or six students workindependently.The above idea begs question of whether student centered classrooms are an effective method for students and teachers why donot most mathematics teachers practice and in corporate it in to their classrooms? According to this basic question the researcher assumed that it may be due to lack of awareness of teachers, lack of educational facilities, and lack of an adequate teachers training on the approach lack of motivation and interest of students by their teachers.In general it may include teacher factor, student factor and educational material factor.

Therefore,to address these factors against implementing student centered method some studies were conducted in order to identify and improve the current practice of learning process. Hence in some primary and secondary school in Ethiopia some states were done by some researchers.Awel (2016)studied on factors that affecting student centered method in Basketo special woreda in four secondary cluster schools.His study found poor supply of text books and the low student'sparticipationas major problems. But concerning active learning approach even other topic, similar studies were not done although there was not seen effective learning in the case ofWolaita sodo townOtonasecondary schoolat any subject area. That inspired the researcher to study the current practice and factors that affectthe implementation of student centered method in this school at two sections of grade 10 in Mathematics class. To identify the factors the researcher prepared the following basic research questions.

1. What are the challenges of teachers no to use student centered method in the class room?
2. What is the perfection of teachersand students towards student centered method in Otonasecondary school at grade 10in Mathematics class?
3. What is the current practice of implementing student centered method in this school?
4. What possible strategies should be taken as asolution to apply effective active learning method in grade 10at Mathematics subject in particularin the school?

1.3. Objectives of the study

1.3.1. General objective

The general objective this study is to investigate the current practice and factors that affect the implementation of student centered method in Otonasecondary schoolat grade 10Mathematics class.

1.3.2. Specific objectives of the study

The Specific objectives of the study are:

1. To identify factorsthat affect the implementation of student centered approach in grade 10Mathematics classes.
2. To examine perceptions of Mathematics teachers and students on the approach.
3. To examine the current practice of Mathematics teachers about the use of active learning.
4. To point out solutions how to apply the new teaching approach.

1.4. Significance of the study

This study may have the following importanceto the school teachers and students as well as school.

- It may help to identify factors that affected student centered method.
- It may give awareness to Mathematics teachers and other teachers in the school as well.

- It brings improvement of student centered method in Mathematics class.
- It well helpsother researcher as a source in future.
- It points out the way of applying activelearning techniques in Mathematics class.
- It helps to bring the quality of education in the school.

1.5. Delimitation of the study

In Wolaita sodo townthere are 67 secondaryschools, that is grade 9-12, 62 governments'administered and 5 private schools.Otonasecondary school is one of them. This school is located east of Wolaita sodo town, in the consideration of time and labor needed the study was confined to Otonasecondary schoolat sections A and B of grade 10 in Mathematics class the researcher was conducted in 2017 . It focused on current practice and factors that affect student centered method. The reason why the researcher selected grade 10 is that the students so matured that they are better than the rest of grades in the school to give relevant information to the research questions.

1.6. Limitations of the study

- During the study the researcher faced some challenges such as less understanding of students about the research questions.Since the study was confined to Otona secondary school due to limitations of time and resources, generalization might not be possible even in Secondary schools of Wolaita Zone, as well as in the national context.

2 REVIEW OF RELATED LITERATURE

In this chapter different important ideas were collected from different sources. These different ideas discussed the concept of student centered teaching method, the importance of active learning, the techniques of student centered/active learning in Mathematics class and factors that affect the implementation of student centered teaching method in Mathematics classroom.

2.1 The Concept of Student Centered Teaching Method

Baeten et al(2010), described student centered approach as away of thinking about teaching and learning that emphasizes student responsibility and activity in learning rather than content or what teachers are doing. The characteristics of this student centered method are an activity and independence of the students, a coaching role of teachers and knowledge which is regarded as a tool instead of an aim. One recurring of this teaching method is fostering deep learning and understanding, which can be expressed as a deep approach to learn.

According to Collins and O' Brein (2003) student centered learning is instructional approach in which students influence the contents, activities, and face of learning process.

Inlejeune (2001p.3) studies that student centered approach builds up on three constructivism's including knowledge acquisition is an active process where the leaner's make sense of the world rather than merely accumulating, learners internalize new knowledge in personal was by creating relationships to existing knowledge, thus enables application and knowledge has a cultural respect that reviews on collaboration and social negotiation to give shared meaning.

In addition, philosopher Marshal(2008 p.22) stated in student centered approach the students are not passive recipients of knowledge ; they are active learners they are not only receiver of information from lectures and books, but they collect information , record it , systematical discuses it, analyze it, and draw conclusion from it and communicate it.

The same idea of the above statement also states that student centered method as involving students in simulations and role plays, assigning a variety of conventional problem solving exercises, and self-placed or cooperative / team based learning (Brent 1996).

2.2 The Practice of Teachers towards Student Centered Method

According to Alemayehu Belachewu et al (2004:95) motivated students typically have positive attitude towards the school. Therefore the teachers are expected to motivate the students to in the lesson make the student actively and create a conducive learning environment.

A more recent model of teaching used in main stream education known as Active Teaching (which fuses on the teachers ability to engage students productively on learning tasks during lessons) assess the management and monitoring of leaning as secondary role for teachers (Richards and lock hart, 1995:102)

2.3 Techniques of student centered method

There are different techniques to use effectively student centered / Active learning method in the new educational system. Such as:-

2.3.1 Discussion method

Discussion in the classroom is an important kind of learner centered activity (ICDR, 1999) it is a method that encourages students' hot participation. It gives a room for students to exchange, explore, and air out their views. The purpose of discussion is to examine information in order to develop a deep and broader understanding of a topic.

Haile and kifle as cited in Fesseha (2001) have identified same way by which a teacher can practice discussion method. These are

a. Brain storming - is a discussion in which members of a group generate different idea on a given problem. Members of a group are free to wards their ideas without self – censoring.
b. Panel discussion – is called the round table discussion. It contains a group of 5 – 8 students who have special knowledge and interest on a topic, question or issue that is to be discussed. It involves a chairman, panel members and

audience.

c. Buzz group discussion – it is a kind of discussion which involves 3-9 members of group for a short period discussion.

In general group discussion method a two – way verbal interaction b/n a teacher and students or b/n students it is an exchange of ideas provides valuable learning to students in effective thinking and making them active participants in class activities.

2.3.2 Problem solving method

According to Lue (2000), problem based learning is derived from conviction that the learner is an active and creative individual with the will and ability to seek knowledge and self-development.

By study Aggarwal,(1996), states that problem solving is an instructional techniques where teachers and students attempt in a conscious , planed and purposeful effort to arrive at some solution.

2.3.3 Group Work

As lang and Porter (1995: 208-212); stated pedagogical arguments for group work in second mathematics learning. Group work increases mathematics practices opportunities; it increases the quality of students talk, it helps an individualized instruction, it promotes appositive affective climate and it motivates learners. The role of teachers to teach in group is to manage the activity and organize time. Therefore the teacher is seen as the manager of activities during group work.

2.3.4 Role Playing

Role playing is a teaching strategy that fits with in the social family of model (Joyce and Weil, 2000). These strategies emphasize the social nature of learning and see cooperative behavior as stimulating students to both socially and intellectually. Role playing as teaching strategy offers several advantages for both teachers and students. A first student interest in the topic is raised researcher has shown that integrating experiential learning activates in the class room increases in the subject matter and understanding of content. Secondly, there is increased involvement on the part of students in a role playing lesson. Students are not passive recipients of the teacher's knowledge; rather, they take an active part.

Thirdly using role playing as a teaching method is that it teaches empathy and understanding of different perspectives (Poorman 2002).

2.3.5 Debating

Debating is an organized dissection on an issue which is usually controversial. The class is divided in to two groups, each supporting a 'side' of the issue; the people who are 'pro' and the people who are against. Each has a leader and supporter's .there is also a chair person who keeps order during the debate. Each side presents its argument in an organized clear and intelligent manner. The chairperson man on has won. This is decided by who has made the strongest, logical arguments and who has refuted the other side's argument successful (chet al. 1995)

2.3.6 Wait time questioning and answering

Rather than choosing student who will answer the question. This vibration has the instruction waiting before calling on someone to answer it. The time question and answer will general short but it may be seen interminable in the classroom. When the wait time is up, the teacher asks for volunteers or randomly picks students to answer the question. Once the students are in the habit of problem solving after question are asked more will get involved in the process (Paulson and Faust, 2003).

2.3.7 Pair works

As Harmer (2001) has elaborately put the advantage of pair work "It allows students to work and interact independently without the necessary guidance of the teacher, thus promotes learner independence.

2.4 Students and teachers insight about student centered method in Mathematics class

According to Botswana in (2009) proved that teachers who had a positive attitude toward active learning showed a better effort in the implementing and using active learning than those teachers who perceived active learning negatively.

Active learning methods encourage students learning and problem solve skills it helps students with greater personal satisfaction , more interactions with peers, great opportunities to work with range of peoples and for all members of the class, to contribute and respond (Capel et al 1995).

2.5 The significance of student centered method in Mathematics class

Active learning /student centered approach is very important to increase the number of active learners and make them effectively communicate in Mathematics contents.

2.6 The importance of student centered method for teachers and students

Student centered method strategies allow teachers to provide each other with peer support and sharing ideas. It allows the teachers to monitor each student's progress daily and give feedback on their work especially when the first introduce their students to this type of learning Environment .This method helps students to learn time management skills and accountability over time. It can also help students to be more engrossed in the learning environment and get more used to this approach of learning (Brush 2000).

In addition some studies as conducted by Wolfforth (2008) and Baeten (2010) have shown that student centered classroom can promote creativity, independence, critical thinking and an overall deeper approach to learning

.Another study by Lea (2003) has shown that the student in student centered method classes tend to develop better skills, achieve better grades and general have more confidence in their knowledge than students in teacher centered class.

2.7 Factors that may affect the implementation of student centered

As a study by Baeten (2010) looked at factors that encourage or discourage the adoption of a dapper approach or learning in a student centered environment .Thus effective implementation of student centered approach requires different instructional facilities.

According to the above study some factors are classroom and school condition, teaches' professional training and ability and willingness to teach by new method and persistence, students need and motivation or interest, sufficient teaching resources or learning materials in the classroom and teaching materials are some common factors that may affect active learning in the classroom.

2.7.1 Motivation and interest of the learners

As stated by Harmer (2001:53) increasing and directing student's motivation is one of the teacher's responsibilities. In the same year, he also stated that there are areas where our behavior can directly influence our students such as goals and goal setting, learning environment and interesting classes.

2.7.2 Classroom conditions

The selection of effective teaching and learning methods cannot be done without the availability of facilities and conducive classroom and school environment.

As the study of Lamathaka and others (2000) educational facilities that provide the learners with a variety of experience and knowledge about physical environment is very important.

In addition to above definition Silverman (1996), points out that the physical environment in the class room can make or break active learning. This includes class room size, seating arrangement and so on.

2.7.3 Teachers professional training, ability and persistence

Having an adequate skill about the activity is developed through different Exposure like training work shop is believed to lay a foundation to promote active learning.

Facility members do not know that there are alternatives for effective teaching and learning and they teach the way they were thought, which was usually through a lecture and note taking format (Klionsky,2004).

As some educators have noted that there is a core problem in teacher trading programs due to the failing of relating theory and practice. Concerning this Amare (2000) has stated that one could speculate a possible student exposure to the new perspective in a teacher training program.

2.7.4 Teaching materials

As noticed by Michael (1998), instructional materials are all those materials that they bring effective teaching method in the classroom. In addition they facilitate his/ her teaching and the work more creative and effective. These materials help the teacher and new concrete dimension to the class room teaching b/c teachers and student's dependence on the materials, in the text book and supplementary books can easily lead to stereo typed mode of teaching and introducing teaching aids to the class room. These instructional materials are text books, reference books, teacher guide, libraries, pedagogical center, and etc.

According to Plass and Hilary (1998, the Presence of sufficient instructional materials and text books has a great rule to implement active learning approach). On this case schools often have to fulfill learning materials and expand class size as well as the ratio of students to teacher to accommodate large number of new students.

2.7.5 Origination of curriculum materials

As Lue (2000), stated the problems of teachers by saying the teachers will often skip over the contents of text book and go on to the next unit due to over- crowded content of curriculum materials. As a result of this the teacher are forced get through the book to cover and present all information contained in the book. This gradually reduces the creativity of learners by their own and in turn hinders the practice of active learning.

2.7.6 The influence of time on student centered method

As Mccarartney (1994), explained time in learning is classified in to two namely, allocated and engaged time. Allocated time refers to the time during which students have opportunity to learn where as engaged time is the part of allocated time when students are actually exhibiting on the task behavior. In classroom instruction there are five ways in that allocated time can maximize. They include avoiding waste time, avoiding late starting and early finishing avoiding interruption, handling routine procedures smoothly and quickly, and minimizing time spent on discipline. Thus based on the above factors the researcher will prepare items of the questionnaires, will make observation and interview to achieve the main objective of the study. Then the researcher expects to get relevant information from secondary and secondary sources of data. Finally the researcher believes to give the conclusion for the result and the recommendation for the research result.

3 RESEARCH METHODOLOGY

This chapter deals with research design, sources of data, methods of data collection, population of the study, sample size, sampling technique, data gathering tools, procedures of data collection and methods of data analysis.

3.1. Research design

This research design was carried out by use of descriptive

survey method for the study. The reason why the researcher has selected this method was to describe the existing condition and identify key factors against student centered method. Therefore, the study focused on current practice and factors that affect the implementation of student centered method in Wolaita sodo town,Otonasecondary schoolat two section of grade 10Mathematicsclass.The researcher has used a mixture of both quantitative and qualitative data analysis technique.This is because the data gathered through questioners, interview and observation.

3.2. Sources of data

In order to get necessary information for the study, the researcher has used primarysources of data this because it had direct physical contact with the event consequently the secondary data was collected from grade 10sample students, Mathematics teachers and school director. Therefore the researcher used the following secondary sources of data. These are interview, questionnairesand observation in the study.

3.3. Methods of data collection

To get relevant information for the study the researcher used questionnaires, observationand interview.

3.4. Population of the study

There are 243 students in the grade 10 in 2017, the year of study. In addition to these three mathematics teachers of the school and the school principal are also included in the study.

3.5. Sample Size

The researcher selected forhis studytwo sections (A&B) of grade 10students. From each of the two sections15 students were taken as sample for the study.The total number of sample size was 30 students, 3 Mathematics teachers and school principal.

3.6. Sampling techniques

The researcher used systematic sampling technique. Therefore with this sampling technique the students were selected from two sections. To make balance between them 15 students were taken by this method from each section. In view of teachers, there were only three Mathematics teachers andthe principalof the school.Thus, the researcher used purposive sampling for both teachers and principal sincethe study concerns them directly.

3.7. Data gathering tools

For the purpose of thestudy, the researcher collected data using closed questionnaires, classroom observation and interview.The researcher has conducted an interviewwith Mathematics teachers and school director to get additional information for the study. For this the researcher used structured interview in order to extract more detailed information from the respondents on the issue. The interview also consisted of the following features. These are existing practice of teaching method, perception and interest of teachers and students, use of active learning method and factors that affect the implementation of active learning method.

3.8. Data analysis

The data analysis was done after collecting all the data shortly, the data was analyzed and interpreted both by quantitative and qualitative descriptivemethod in logical order based on objectives of the study.Thereforethe collected data from the respondents of Otonasecondary school in grade 10on the research of the problems of the implementation of student centered method in Mathematicsclass was analyzed, interpreted to indicate events in percentage. Hence the researcher usedtables to easilysee the result.

4 DATA ANALYSIS PRESENTATION AND INTERPRETATION

In this chapter the data gathered from questionnaire, observation and interview wereanalyzed. To supplement and enrich the information that was generated using questionnaire and interview. The data from interview, and observationwere analyzed qualitatively.

4.1 Responses from students

4.11 Students' interest and motivation in Mathematics class

In table 1.1, item 1, about 47% of the respondents expressed their disagreement that they were not interested in class activities while Mathematics teachers were teaching. In addition 33% of the respondents stated their strong disagreement on the item but only 17% or 5 of the respondents responded that they were interested in class activities during Mathematicsclass. According to the response, majoritythe students were not interested in what the methods there their teachersuse in classroom. This implies the teachersdon't usedifferent techniques of active learning method in the classroom.

In table1.1, item 2 about 13.3% students replied agree on the application of active learning method in their class room.And 53.3% of the respondents replied strongly agreethat if active learning method effectively applied in the classroom, it would increase mathematics skills of the learners. But only 33.3% of the respondents expressed their disagreement on the item. From the above information one can understand that most of the students believe that active learning method iseffective learning to enhance the mathematics skills of learners although they were not interested by the current their teachers teaching method.

4.12 Perception of students on active learning.

In table1.2, item 3 about 27%and 47% of the respondents stated their agreement and strong agreement that students feelas active learning method (group discussion) brings negative impact onclassroom management.But about 10 and 16% of the respondents opposedor disagreed. From the above information we understand that teachers don't guideor managethe class to practice active learning

method.

4.13 Participation of students in class activities

In table 1.3, item 4 about 47% and 27% of the students stated their disagreement and strong disagreement on the item. In contrast, 10% and 16% of them replied as the students participate actively in class activities but as the response of majority respondents one can understand that the students were not motivated by their teachers and did not have active participation in different class activities. As a result in the absence of student's motivation and active participation it is impossible to say that there is student cantered in the class room.

4.14 Teacher's willingness to teach student cantered method and encouraging students to participate in class activities.

Table 1.4, item 5 shows that 27 % and 50% of the respondents replied disagree and strongly dis agrees respectively. Only 23% of the respondents gave their responses they agreed on the item. This implies that their teachers were not willing to practice new approach teaching method.

4.15 Reporting the result of group work

In table 1.5, item 6,37% of the respondents stated that almost none of the teachers make the students report group discussion result.63% of the respondents replied that the teacher never allow the students to present group discussion to the whole class. This implies that all the Mathematics teachers do not use student centered method in the classroom.

4.16The use of student centered method

Table 1.6, item 7 shows that 40% of the respondents replied as the teacher was advising them about the use of student centered method. But 60% of the respondents stated as their teachers do not use student centered method and don't advise them about the benefit of student centered method for the students. This shows that the teachers use only teacher centered method in the classroom.

4.17 Usage of time

In table 1.7, item 8, 47% of the respondents replied that their teachers use the time properly. But 53% of them responded that the teachers do not use the time properly to practice different activities in the classroom. This shows that the teacher can' not use allocated time properly.So,with this we cannotsay that there is student centered method in their class.

4.18 Educational materials and facilities

Table 1.8, item 9, shows 80 % of the respondents replied that as there are enough text books and seats in the classroom. But only 20 % of them stated as there is a shortage of text books and seats in the classroom. From the above information one can understand that there are sufficient educational materials and text books in the school to practice student centered method.

4.2 Responses from Mathematics teachers

4.21 Encouraging students during group discussion

In table 2.1, item 1, about 67% of the teachers replied as they are not willing to encourage their students and use group discussion. But only 33% of the teachers stated that as they encourage their students and use group discussion. As the majority of the teachers replied one can understand that there is no encouragement given by the teacher to the students to do group discussion in the classroom. Therefore this is one major factor that affectsstudent cantered method.

4.22 Allowing students to present group discussion result to whole class

In table 2.2, item 3, 67% of the teachers expressed as they do not give group wok activities and make the student to present the result to the whole class.But 33% of the teachers have an attempt of allowing teaching in group work and allowing the students to present the result. From the above information according to the majority response one can understand most of the teachers do not use group work in the classroom.Therefore,this is the major obstacle factors that affectstudent centered method.

4.23concerning content of text book

In table 2.3, item 4, 67% of the teachers said the content of text book is interesting to practice student centered method only 33% of the teachers said that the content of text book is not fit for active learning method. From the above information one can understand that the content of text book of Mathematics is good and may promote student centered methodeven if the teachers do not havethe habit of using this method.

4.24 class size

In table 2.4, item 5,100% or all teachers stated their strong disagreement about the item.

This shows that there is unbalanced ratio of students to classroom size. In this manner it is difficultto apply active learning method in the classroom.

4.25 Educational materials

In table 5, item 6, 100% of the respondents or all the teachers responded as they agreed on the presence of text books and teachers guide on the school. Therefore, this promotes the implementation of student centered method in the Mathematics class.

4.26 Extra teaching aids

In table 2.6, item7, 67 % of the teacher does not use teaching materialsbased on content where as 33% of the teachers use teaching material according to their responses.From the above information most of the teachers do not use teaching materials in the Mathematics class. So this affectedthe implementation of effective active

learning method.

4.3 Classroom observation

4.31 Classroom condition

In item 1, as the researcher has observed the classrooms sitting materials are balanced enough with the number of students.Therefore,thiscan promote the implementation of student centered method.

In item 2, three a lack of free space among the sitting rows due to a large number of students in a class. So this is the major problem to implement active learningmethod in the classroom. Item 3 shows that there is poor sitting arrangement of seats in each class. Hence it is too difficult to apply active learning methodeffectively. In item 4, the researcher has observed seats of students are easily movable for the purposes of different techniquesof active learning method.So, this can raise the implementation of active learning method yet not implemented.

4.32 The role of teacher in the classroom

As indicated in table 3.2, the researcher observed teachers in selectedMathematics classes. Such as grade 10th A and B as well as teacher in other Grade 10 section, in this classes the sitting arrangements of students was in traditionally way. So it was not fit to apply student centered method.

Though teachers encourage the students by questioning and answering teaching, many of students were not get motivated. This is because teachers did not apply active learning methods in their classroom.

4.33 Student's activities in the classroom.

As the researcher tried to put in table 4.3, participation of students was not satisfactory. They were passive listeners while their teachers teach them using questioning and answering technique. Except few students in observed three classes most students were passive learners.

4.4 Interview

4.41 Interview with Mathematics teachers

1. Researcher:Do you usually use student centered method in your Mathematicsclass? If not why?

   Two of the three teachers on the study repliedthat they do not use active learning method in their class. But one of three teachers responded that he sometimes uses active learning method. They pointed out the reason why they don't use student centered method in the classroom that they did not get basically professional training on the issue properly.

   In addition they stated in case of some problems that they could not apply student centered method. As they mentioned the problems was large number of students in the classroom, traditional sitting arrangement of students, and others. From the response one can understand in the absence of these facilities it isnot possible to apply active learning method in the classroom.

2. Researcher:are your students interested when they are given group work to be done in the class?

   One Teacher replied no, most of the students werenot interested when they were given group work because of this reason I did not use group work. InsteadI usuallyuse lecturing and sometimes question and answer. But two of the three teachers replied as the students were very interested when they were given tasks done by teams.Therefore if students were given tasks to do in team, they get more motivated to learn mathematics.

3. Researcher:What teaching techniques' do you use to relate of text book with student centered method? Two of the three teachersanswered due to the above mentioned lack of fulfillmentof facilitieswe use lecturing or teacher centered method.

4. Researcher: Do you have apositive attitude about student centered method?

   All the three teachers responded it was good, but it is time consuming to cover the content in a period.As result it is impossible to use student centered method in the class regularly. From the teachers response the researcher commented that Mathematics teachers do not have persistence and positive attitude on the method .Because they could not try to manage the time and apply active learning method. Instead they preferred to practice teacher centered method.

5. Researcher: How do you fell about practicing of student centered method?

   All the three teachers responded if the facilities are fulfilled, and teachers are given workshops it is good to develop the student understanding. But in the absence of these it is difficult to practice it in the class.

6. Researcher:what are the major factors do you thing that affects student centered method in Mathematics class?

   All the three teachers responded that on the view of our school there are some negative factors that affected the implementation of student centered method. Asthey mentioned these factors are unsatisfactory teacher training on the issue, large number of students in a class isthe major once.

4.42 Interview with school principal

1. Researcher: Do you think that Mathematics teachers regularlyuse student centered method in Mathematics class?If not why?

   Principal: No, they do notuse active learning method as their regular practice. They are seen using teacher centered method in their Mathematicsclass. Not only Mathematics teachers but also all subject teachers teach regularly

teacher centered method. I think that the reason why they do not use student centered method is that they have a long experience of lecturing method during the learning time. In addition I think they did not get enough training to build capacity. More over a large number of students in a class may affectthem to apply active learning method.

2. Researcher: How do you think that teachers and students perception to implement student centered method?

   Principal: I think that teachers do not have good perception and interest to use such a method. As I believe mathematics classalways involves participatory learning process. But, most of the time Ihave observed that Mathematics teachers seen while they are using lecturing method.

3. Researcher: Have you ever given workshop or short term training to the school teachers?

   Principal: Yes, but I cannot say that it is sufficient for them. I could say this training requires to be continuously runningtraining in order to develop the capacity of professionals on work.

4. Researcher: what problems do you think isin the school that teachers and students may face during active learning method?

   Principal:a large number of students in a class may be obstacle forteaching and learning process named active learning method and lack of interest and sitting arrangement of students.

5. Researcher: As a school principal what do you comment about the exiting practice of student centered method?

   Principal: Basically student centered method is very best method in my belief if the stakeholders are aware of it. But, hereat the present time this method is not being practiced as required because of the earlier mentioned factors.

5 SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter is divided in to three main parts. These are summary, conclusion and recommendation. Summary deals with or states of the main points of the study. Conclusion also sums up an opinion on the result of the study. Finally, recommendation puts actions to be done for the purpose of the study, based on the results under chapter 4.

5.1. Summary

The purpose of this study was to examine factors affecting the implementation of student centered method in grade 10Mathematics class of Otonasecondary school in Wolaita sodo town,wolaita zone, SNNPR Region. In order to achieve the desired goal of this study, the following based questions were prepared to the research specific objectives.

1. What are the main factors that affect the implementation of student centered method in the mentioned class?
2. What is the current practice of implementing student centered method in the class or in the school?
3. What possible strategies should be taken as a solution to solve the problems and apply active learning method in this class and school as well?

   Therefore to achieve the goal of this study data gathering instruments were prepared by the researcher carefully.The instruments were questionnaires observation and interview. The questioners were distributed for grade 10 thirty sampled students and for three Mathematics teachers. Interview also was conducted withthis three Mathematics teachers and school principal.In addition classroom observation was done at two sections (A&B) of grade 10 and one section (A) of grade 7 when Mathematics teachers were teaching Mathematics. The participants of this study were 30 sampled students out of 243 grade 10 students, 3 Mathematics teachers and the school principal. In the study the researcher used descriptive research design and a mixture of quantitative and qualitative data analyzing method. The sample techniques were systematic random sampling and purposive sampling methods. Systematic sampling method was prepared for students were as purposive sampling technique was prepared for Mathematics teachers. The number of questions was prepared for each student was nine were as the number of questions for each teacher was seven. The interview also was prepared for each teacher was six, and for the school principal was five.

5.2. Conclusion

Based on the result of the study the researcher put the following conclusion on some factors that affected active learning method in Otonasecondary school at grade 10Mathematics class.The factors were seen in three aspects. These factors included on the view of teachers, student's classroom conditions and facilities.

Teacher's factors

- As the result showed Mathematics teachers have a lack of interest, perception and initiation to implement student centered method. Therefore, thisis the major factor that affected active learning method in the Mathematics class.Related to the above problem most

teachers were not willing to encourage their students to be active participant in different active learning techniques in the Mathematics class. This without students' active participation teaching would not be effective. Thiswas also the major problem of the teachers.Most of Mathematicsteachers in the school get stick on the way to use old teaching method are the major factors in the Mathematics class.Mathematics teachers were practicing only questioning and answering learning technique in the school. Therefore active learning method is not practiced in the school. Because, most of the teachers use regularly teacher centered method. Generally, on account of the above problems the practice of above learning method in the school was very low on the view of teachers.More over in adequate teachers training on the issue was another problem.

Student's factor

- Although there were not different techniques of active learning method applied in the class during answering and questioning only few students participate in learning process actively. This implies most of the students are passive listeners.According to the result some students feel group discussion makes classroom disturbance. This implies a lack of perception and interest about student centered method. Therefore, this negative attitude of students has affected student centered method in the class. To sum up this is related with the teacher factors. Because if the teachers were interested and willing to practice active learning method and encouragedtheir students would have a positive attitude on active learning method (group discussion), andbecome active participant.

Classroom condition and other facilities factors

- A large number of students in the classroom were a major problem to practice active learning method. Because**of this** problem it is impossible to practice active learning method. It is also too difficult to monitor classroom activities in this manner due to the large number of students in the class. So this is one of the major factors that affected student centered method.Sitting arrangement in the classroom was no suitable with implementing active learning method. Because it in traditional way of sitting method or old teaching method. As the researcher observed there was no free space between the rows of seats in each classroom. This implies again the large number of students in the classroom.As a result it was hard to go round for the teachers around each group during different techniques of active learning, specially during group discussion. So this was the major challenge to practice student centered method in the class.

To sum up factors hindering the implementation of student centered method in the grade 10Mathematics class were in adequate teacher training, lack of interest and perception of teachers and students due to having long term experience of teacher centered method of teachers, low participation of students, large number of students in the class were seen as the major factors that affected student centered method in grade 10Mathematicsclass.

5.3. Recommendation

This research shows it is possible to improve the effectiveness of the implementing student centered method in the classroom and school. Thus based on the general findings the researcher came up with the following recommendations that can be made:

- Since teacher's professional training is an important issue or teachers to apply appropriate teaching practice, the school director should give continuously short term training to develop teacher's capacity building. In addition, the school director should prepare teachers experience sharing program with other schools` teachers on practical rather than theoretical.

- As professional teachers the teachers should have persistence interest and perception in practicing the new teaching approach. Because these are expected from teachers who are responsible before implementing student centered method.

- As Mathematicsteacher the teachers should need sufficient teaching skills to enable every student opportunities to speak in group and to do different communicative activities.
- The students should be encouraged by the teachers to express their own opinions, to be self- confident, and active participant in order to solve problem.
- Students should demonstrate adequate Mathematics proficiency to participate in communicative activities through active learning.
- Since the study assured that active learning method is crucial to communicative skills teachers should be initiative to apply it.
- Teacher should use properly the allocated time in a period to cover different activities during a single period.
- The school should facilitate classroom conditions and make balance number of students to the teacher in the classroom. Because this plays great role to apply student centered method. In addition the school director should expand classrooms to effective learning and teaching process.
- The school director should work with state holders to build addition class rooms in order to make balance the number of student with class room size.
- The school director should discus with school comminutes how to solve the problems of student centered method

Table 1.1 Concerning students' interest and motivation in Mathematics class

No	item	Alternatives	Number ofrespondent	%
1	In our Mathematics class students are interested in class activities.	- Disagree	14	47%
		- Strongly disagree	10	33%
		- Un decided	-	-
		- Agree	5	17%
		- Strongly agree	1	3%
2	In Mathematics class students believe that active learning is an appropriate method to increase mathematics skills of learners.	- Disagree	10	33.3%
		- Strongly disagree		-
		- Un decided		-
		- Agree	4	13.3%
		- Strongly agree	16	53.3%

Table 1.2 Perception of students on active learning.

No	item	Alternatives	Number ofrespondent	%
3	In our Mathematics class some students feel that active learning method has a negative impact on classroom management	- Disagree	3	10%
		- Strongly disagree	5	16%
		- Un decided	-	-
		- Agree	8	27%
		- Strongly agree	14	47%

Table1.3 concerning the participation of students in class activities

No	item	Alternatives	Number ofrespondent	%
4	In our Mathematics class	- Disagree	14	47%
		- Strongly disagree	8	27%
		- Un decided	-	-
		- Agree	3	10%
		- Strongly agree	5	17%
	students are more motivated and actively participate in group discussion, debate, dialogue, problem solving… etc.			

Table 1.4 Teacher's willingness to teach student centered method and encouraging students to participate in class activities.

No	item	Alternatives	Number ofrespondent	%
5	In Mathematics class the teacher is willing to practice student centered method and encourage students in class activities.	- Disagree	8	27%
		- Strongly disagree	15	50%
		- Un decided	-	-
		- Agree	7	23%
		- Strongly agree	-	-

Table 1.5 Group work result report

No	item	Alternatives	Number ofrespondent	%
6	How often different group work result is reported by group numbers to whole class?	- Rarely	11	37%
		- Some times	-	
		- Most of the time	-	-
		- Not at all	19	63%

Table1.6 The use of student centered method

No	item	Alternatives	Number ofrespondent	%
7	Does your	Yes	12	40%

	Mathematics teacher use and advise you about the use of active learning and help you to be self-confident?	*No*	*18*	*60%*

Table 1.7 Usage of time

No	*item*	*Alternatives*	*Number ofrespondent*	*%*
8	*Does your Mathematics teacher divide the time properly for different activities in the classroom?*	*Yes*	*14*	*47%*
		No	*16*	*53%*

Table 1.8.Educational materials and facilities

No	*item*	*Alternatives*	*Number ofrespondent*	*%*
9	*Are there enough text books and sitting materials in your class?*	*Yes*	*24*	*80%*
		No	*6*	*20%*

Table 2.1 Encouraging students during group discussion

No	*item*	*Alternatives*	*Number ofrespondent*	*%*
1	*During Mathematics class I encourage each group when they are discussing*	- *Rarely*	*2*	*67 %*
		- *Some times*	*1*	*33%*
		- *Most of the time*	-	-
		- *Not at all*	-	-
2	*In Mathematics class how often you use different active learning techniques.*	- *Rarely*	*3*	*100%*
		- *Some times*	-	-
		- *Most of the time*	-	-
		- *Not at all*	-	

Table 2.2, Allowing students to present group discussion result to whole class

No	*item*	*Alternatives*	*Number ofrespondent*	*%*
3	*In Mathematics class I often give group work activities and allow them to present the result to the whole class.*	- *Disagree*	*2*	*67%*
		- *Strongly disagree*	-	-
		- *Un decided*	-	-
		- *Agree*	*1*	*33%*
		- *Strongly agree*	-	-

Table 2.3, concerning content of text book

No	*item*	*Alternatives*	*Number ofrespondent*	*%*
4	*I know that the content of text book is not interesting to implement student centered method.*	- *Disagree*	*2*	*67%*
		- *Strongly disagree*	-	-
		- *Un decided*	-	-
		- *Agree*	*1*	*33%*
		- *Strongly agree*	-	-

Table 2.4 The ratio of student to classroom size.

No	*item*	*Alternatives*	*Number ofrespondent*	*%*
5	*The number of students and classroom size are matched to implement student centered method*	- *Disagree*	-	-
		- *Strongly disagree*	*3*	*100%*
		- *Un decided*	-	-
		- *Strongly agree*	-	-
		- *Agree*	-	-

Table 2.5 Educational materials

No	item	Alternatives	Number ofrespondent	%
6	In the school there are adequate educational/ curriculum/ materials of the Mathematics subject that you teach like text book teacher guide.	- Disagree	-	-
		- Strongly disagree	-	-
		- Un decided	-	-
		- Agree	3	100 %
		- Strongly agree	-	-

Table 2.6 teaching materials/aids/ to help students learning

No	item	Alternatives	Number ofrespondent	%
7	During Mathematics class as necessity I usually use teaching aids students learning.	- Disagree	2	67%
		- Strongly disagree	-	-
		- Un decided	-	-
		- Agree	1	33%
		- Strongly agree	-	-

Table 3.1 Classroom condition check list

No	Check list	Yes	NO
1	Classroom has enough sitting materials.	√	
2	There is free space for teachers to move in the classroom and help students during group work.		√
3	Classroom sitting arrangement is fit to implement student centered method specially group work.		√
4	The seats are easily moved to the purpose of teaching method.	√	

Table 3.2 The role of teacher in the class

No	item	Yes	No
1	Teachers arrange the sitting of students for different class activities.		✓
2	Teachers encourage students to participate actively in class activities.	✓	
3	Teachers give direction to the class about active learning.		✓
4	Teachers have a good interaction with students in the classroom		✓
5	Teachers use active learning technique and time properly.		✓
6	Teachers motivate their students to participate confidently in different class activities.		✓

Table 4.3 Observation on student's activities in the classroom

	Item	Yes	No
1	There is active participation of student in the classroom.		✓
2	Students do different class activates by equal participation.		✓
3	Students give attention during classroom presentation.		✓

APPENDICIES

A Questionnaires to be filled by teachers

Dear respondents, The purpose of this questionnaire is to gather relevant data to achieve the required goal. The entitled factors that affect student centered approach in case of Wolaita sodo townOtonaSecondary school grade 10Mathematics class. You are kindly requested to read all the questions and fill the questionnaires carefully. Thank you!.

General direction

1. You do not need to write your name on the questionnaire paper.
2. Read all the instruction and give appropriate response by using tick Mark " √ " to your choice.

Part I. Information of back ground

1. School name ---------- Grade ---------- section ----------
2. Age ----------
3. Sex: Male ☐ Female ☐

4. Qualification: Diploma ☐ Degree ☐ 2nd degree ☐
5. Service year in the school: 1-5 ☐ 6 -10 ☐ Above 10 year ☐
6. Part II. Direction: by using the level of agreement / dis agreement give the following indicator to your choice in the table given under the alternative numbers 1 – 5.

1 = dis agree 4 = Agree

1 = strongly dis agree 5 = strongly agree

2 = undecided

alternatives ☐ ☐

Items	1	2	3	4	5

1. During Mathematics class I encourage each groups
2. in when the students are discussing. ☐ ☐
3. During Mathematics class I make the class to be more

   Participatory through giving group activities, pair works
4. In my Mathematics class I often give group activities and collect the

   result of group work rather than helping and giving feedback.
5. I know that the content of text book does not help the student to

   be interested in active learning method.
6. I think that the size of the class room and number of students are

   not suitable to apply student centered.
7. In the school there are sufficient instructional materials like tables,

   text books, chairs, reference books.
8. During Mathematics Class I usually use teaching material to help students

   Learning and apply student centered method

B. Questionnaires to be filled by students

General direction:

- Don't write your name on this paper
- Follow the directions given in each part.

Part I. Information of back ground

1. The name your school ----------
2. Grade and section ---------- age ---- sex : Male ☐ Female ☐

Part II Direction: By using the level of agreement /disagreement given below, indicate your selection by this tick mark ''√'' in the table from 1 – 5.

1= disagree 2 = strongly disagree 3 = un decided 4 = agree 5 = strongly agree

1. In our Mathematics class students are interested

   a directed in class activities
2. In our Mathematics class students believe that

   active learning is not appropriate method

   to increase mathematics skills.
3. In Mathematics class students are more motivated

   and actively participate to share experience

   through group discussion, debate, dialogue, problem solving, etc.

   4. In Mathematics class some students feel that active

   Learning method creates negative influence to

   Classroom management.
5. In Mathematics class the teacher is usually willing to give

   class activities and encourage the students rather than

   lecturing.
6. In Mathematics class student centered enables the learners

   to be self-confident, critical thinker, problem solver and

   creativity independence.
7. Our Mathematics teacher has a knowledge of teaching students

   by involving in active learning.
8. Our Mathematics teachers use the time properly for different

   activities in the classroom.
9. In our class there is enough text books, chairs, tables

   and reference books which help the students in their learning.

C. Interviews conducted with teachers

Dear teacher,

The purpose of this interview is to distinguish about the existing practice of student centered teaching method in your school. This study is secondary used to improve the implementation of student centered method. Therefore you are kindly requested to every item in the interview.

Part I. interview items

Direction: I would like you to briefly give your own opinion based on your experience in teaching leering process.

1. Do you usually use student centered in your Mathematics class? If not why?

   ---

2. Are your students interested in what you give them group works to be practiced in classroom?

   -----

3. What teaching techniques do you use to relate the contents of grade 10 text book with student centered method?----------
   ---
   ---

4. Do you think that Mathematics teachers and have positive attitude on student centered method?----------
   ---

   ---

5. How do you fell about the practice of student centered in Mathematics classroom?

   ---

6. What are the factors affect that you think to practice student centered method in classroom?----------
   ---

D. Interview to be conducted with school principals

Dear principal;

The purpose of this interview is to know about the existing practice of student centered method therefore this research secondary used to improve the current practice of student centered near the future in Mathematics class. Thus as leader you are kindly requested to give the response in the interview.

Part I. back ground information

Please use this tick mark"√" to give your information.

1. Sex: Male ☐ Female ☐
2. Age ☐
3. Qualification: Diploma ☐ Degree ☐ M.Sc ☐
4. School name: ----------
5. Service year: 1- 5 years ☐ 6 – 10 year ☐ above 10 year ☐

Part II. Interview items

Direction: I would like you to briefly give your own opinion based on your experience in school learing & teaching process.

1. Don you think that Mathematics teachers regularly use student centered in Mathematics class?

   ---

2. How you do think that Mathematics teachers and students' perception on student centered?

   ---

3. Have you made any short training program in the school for teachers regarding student centered method?

   ---

4. What are the problems that you thing in the school teachers and students may face during the practice of active learning method? ---------
   ---

   ---

5. As the school director what do you comment about the existing practice of student centered method in your school

E. Classroom observation check list

Part I back ground information of teachers

1. School name ---------- Grade ---------- section ----------
2. Age ----------
3. Sex: Male ☐ Female ☐
4. Qualification: Diploma ☐ Degree ☐ 2nd degree ☐
5. Service year in the school: 1-5 year ☐ 6 -10 year ☐ Above 10 year
6. Number of students in the classroom : Below 50 ☐ 50 – 60 ☐ Above 60 ☐

Part II Items of observation

No	*I. Classroom condition*	*Alternatives*	
		Yes	*No*
1	*Classroom has enough seating materials and learning materials such as desks, text books, chairs…etc.*		

2	*Teacher freely moves in the class to help students during class activities.*		
3	*Classroom setting arraignment is fit with the need of student centered method.*		
4	*The seats are easily movable to the purpose of teaching.*		

No	*II The role of teacher in classroom*	*Alternatives*	
		Yes	*No*
1	*Teacher arranges the students for different class activities.*		
2	*Teacher gives direction to the class about the effectiveness of activity.*		
3	*Teacher encourage students actively participate in class activities.*		
4	*Teacher has a good interaction with students in classroom.*		
5	*Teacher gives activities and keeps time for the students to report the activity result.*		
6	*Teacher motivates students to practice confidently to do class activities and improve their mistakes.*		

No	*III. Student Activities in classroom*	*Alternatives*	
		Yes	*No*
1	*There is active participation of students in the classroom.*		
2	*Students fill happy when the teacher presents daily lesson for the class.*		
3	*The students give attention to follow the teacher when he is teaching the lesson.*		

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