



IMPROVING THE CLASSROOM PARTICIPATION OF 2ND YEAR MATHEMATICS STUDENTS AT GILGEL BELES CTE: AN EXPERIMENTAL ACTION RESEARCH

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Abstract

The main purpose of this Action Research was to explore the factors that hinder the classroom participation of the students in math lessons and minimize the impact of those identified factors through intervention. Purposive sampling was used to select section A math student as the target population and stratified sampling to select 25 (10 female and 15 Male) from a total of 50 as the study sample. Both interviews and classroom observation were used to collect data and classroom observation was done for a period of 3 weeks (before, during and after the intervention of the proposed strategies) when the researcher was delivering the contents of the course entitled “Plane Geometry”. The findings showed that all of the students interviewed said that their participation level varies from subject to subject and teacher to teacher, and majority of the students interviewed revealed that they were encouraged to participate in the class when their participation is marked and added to their grade. On the other hand, the result of the interview data showed that: teacher related factors (like lack of motivation and few wait times given by teachers), subject matter factors (such as hardness of the content and poor academic background) and student related factors (like poor at English language and shy & fear of speaking before peers) were also influencing students classroom participation. These problems elicit the researcher to take interventions via implementing different action strategies and apply varied active teaching and learning methods. And the result of classroom observation revealed that, averagely the participation level of the students was raised up from 44% (before the intervention) to 70% (after the intervention). This implies, over quarter of the students were still sitting silent in the classroom and hence, there needs further intervention to promote student’s classroom participation.

Keywords: Classroom, Classroom Observation, Factors, Participation, Wait Time.

1. Introduction

1.1. Background of the Study

According to Sewnet T. and Kassegn B. (2015), students learn best when learning is active. That is, when they are mentally involved in the lesson, when they engage in hands - on activities, when they are involved in a process of inquiry, discovery, investigation, and interpretation. But, when the students are passive, their brain doesn’t do jobs and processing or retaining information efficiently. That is why many scholars agreed on the idea learning is enhanced when students repeat the information in their own words or when they give examples or make use of the information. Students are also able to show their progress in learning a certain task only if they are actively involved in the process. Furthermore, students’ participation has a significant role for the teacher to assess the mode of his/her lesson delivery and the effectiveness of his/her teaching methodologies, assessment techniques and organizing his/her future learning activities.

As clearly stated by Gallagher (1997) cited in Sewnet T. and Kasegn B., (2015), over the years, scholars, researchers and national reports have discussed the importance of employing active learning instructional strategies to maximize student learning in the college or university classroom, and researchers have proved that active learning has received considerable attentions.

1.2. Statement of the Problem

In today’s world, Education has been transformed as to be a means for achieving ones’ own need and this can be accomplished by implementing active learning style that engage the students mentally and emotionally in the lesson and promoting students’ participation in classroom activities Yosef Kasa,(2016). But when we come to our college, even if majority of the instructors were HDP graduates, they consider their students as an empty pot that they will fill the knowledge through lecture method. Due to this fact, majority of the students were sit ideal and become passive in the classroom. In line with this fact, during the first few weeks of this semester I observed the classroom participation of second year Mathematics students of GBCTE and discovered that it was too low. Therefore, this perceived low participation of second year Mathematics students of GBCTE in the course Plane Geometry (**Math 211**) urged the researcher to conduct this action research and change the tendency of low participation of students in the classroom through interventions.

1.3. Research Questions

The study was designed to address the following major and specific question/s:

“How can we Improve the Classroom Participation of 2nd year Extension Mathematics Students’ of GBCTE in Mathematics Lessons?” and the following specific questions:



1. What are the factors that hinder the classroom participation of students in math lessons?
2. How can I minimize the impact of the identified factors that hinder students' participation in math lessons?

1.4. Objective of the Study

The general objective of the study was "To improve classroom participation of 2nd year Mathematics student of GBCTE in Mathematics lessons" with the following specific objectives:

1. To identify factors that hinders the classroom participation of the students in math lessons.
2. To minimize the impact of the identified factors through intervention.

2. Literature Review

2.1. What is Classroom Participation?

According to Lee (2005), cited in Namini Devi (2008), Classroom Participation usually means students speaking in class which consists of answering and asking questions make comments and join in discussion. Besides that, paying attention, being on task, responding to questions, participating in group discussion, asking questions, seeking help and making good use of class time can also be considered as classroom participation. But students who do not participate in those ways mentioned above are often considered to be passive in classroom.

2.2. Why Classroom Participation?

There is strong evidence for the importance of participating in class. Participation is a way to bring "students actively into the educational process" and to assist in "enhancing our teaching and bringing life to the classroom" Weaver & Qi, (2005), cited in Kelly A. Rocca, (2010). Crone (1997), cited in Marija Susak, (2016) noted that if you engage a student in an active learning environment, they have the opportunity to become critical thinkers and in turn will be less passive. Siti Mustapha (2016) strongly argued that providing students with strategies to overcome their fear of speaking in class, and making constant effort to relate the topics to the students' life make students feel more involved. Making lessons interesting and fun would help increase students' excitement and level of engagement. When students feel connected and excited, they would be more compelled to take part in the learning. Educators need to strive towards providing a more supportive, non-threatening and open learning environment where students would feel comfortable in letting their voices be heard.

2.3. What Opportunities are there for Participating?

As it was argued by Mesa V., (2010) instructors have at hand several options for increasing student participation. One way is to ask questions for which teachers expect students to provide a response or to assign class time for students to work individually or with others in specially crafted activities. Associated with asking a question is providing ample time for students to think about the question and to supply an answer. On average, instructors wait less than three thirds when they ask a question that requires an answer. With such little wait time it is argued that students are not encouraged to voice an answer or contribution and therefore opportunities for participation are shut down. In addition, increased wait time (three thirds or more) has been systematically associated with higher student participation and increased complexity of the students' responses. Providing time during class in which students solve problems or share their thinking with peers has shown to have an impact on students' learning Mesa V., (2010).

2.4. Factors That Affect Participation Levels:

There are many factors that can influence the participation of students in the classroom. In fact, some factors are internal and others are external. Some students are also assertive, active and confident enough. On the other hand, there are some students who are bashful and passive. The main reason for this disparity may be socio-cultural values that oriented towards gender differences Efa Tadesse D. &, Ephrem Merdasa K. (2017). Furthermore, Marija Susak, (2016) suggested that numerous factors determine the participation levels of students in the classroom and need to be taken into account when setting a strategy that will encourage an active learning environment and therefore raise levels of participation. In line of this, some of the hindering factors are sated in the following ways.

2.4.1. The Role of Teachers in the Classroom

Mohammed S. Rashid (2018) strongly agreed that, teachers are an important key factor for creating opportunities that facilitate students' learning in many areas of instruction. They provide learners with good teaching and learning processes. Teachers also influence student participation in different ways: they can enable students to enjoy their teaching, and like the subject or otherwise, can hinder students from enjoying the class. Teachers need to understand the philosophy of the curriculum and the intended outcomes which are set by the initiations or the educational policy makers in which they work for. As cited in Mohammed S. Rashid (2018), literature has shown that there was a mismatch between the intended outcomes of the educational curriculum and the beliefs of the teachers, as argued by many researchers (Orafi and Borg, 2009; Nunan, 2003).



2.4.2. Students Trait

As individuals, we differ in personalities and not everybody is the same. Confidence is a key trait that students struggle with and has a direct effect on participation (Weaver & Qi, 2005) as cited by Marija Susak, (2016). Students deal with fears of not being smart enough to address their class and therefore holdback on providing insight on subject matter due to intimidation Anxiety and nervousness, independent of classroom logistics, are also inhibit students from communicating instead of building their confidence through participation. Moreover, students will only engage in classroom activities if they feel that what they have to say is important and interesting for the class. By doing so, they become more comfortable with the subject matter and can organize their thoughts so that they would be able to participate in classroom discussion.

2.4.3. Classroom Atmosphere

The atmosphere of the classroom considered as main factor of participation in class activities. Classroom environment is very important in the development of self-esteem and, later on self-confidence in a profession can be linked. The extent of conduciveness of classroom is a major factor in shaping their engagement, because the condition of the environment. The classroom conduciveness helps the active learning methods and promotes the participation of the students. Then students can involve in different activities particularly in group discussion. Therefore, instructors are expected to facilitate the atmosphere of the classroom participation so that it can enhance the overall effectiveness of active learning methods Efa Tadesse D. &, Ephrem Merdasa K. (2017).

2.4.4. Classroom Size

According to Lekh Raj G. & Budhi Man R. (2019), Classroom size affects the level of participation in classroom. In larger class size, there was not a sufficient amount of time to have the same opportunity to participate because too many students want to talk and there will not adequately time for everyone to say something. Moreover, due to larger number of students wanting to participate and the length of time they consume while participating, there was an insufficient amount of time to participate. However, if the size of the class is small more number of students is likely to participate and feel more comfortable to share their thought and feelings when the classroom size is small. In larger classroom size, students feel nervous and could not participate.

Marija Susak, (2016), strongly argued that logistics of the classroom do matter and affect classroom participation. Classroom size has shown to have a direct and indirect impact on participation. In small classroom, higher levels of participation have been recorded due to the student being more comfortable in an intimate classroom setting and therefore having less anxiety. Moreover, as cited in Marija Susak, (2016) Auster and MacRone (1994) argued that classrooms with over 40 students had low participation rates. This is because classrooms with that number of students did not have a sufficient amount of time for discussion and most teachers prefer lecture style of teaching which limited students' contribution in discussion.

2.5. Grading Student's Participation

According to the researcher Fassinger (2000), cited by Marija S. (2016), grading student's participation is an effective method that can be used to increase the levels of students' participation. This is because if the students are aware of its positive impact on their grade, they are more likely to participate in classroom discussions.

3. Methodology

3.1. The Target Group of The Study

Of the three sections (A, B and C) of second year Mathematics students in Extension Program, section A, which comprises of 10 female and 40 a total 50 students was purposively selected as the target group for this study. As the pre – information of the researcher, majority of the students in that class were joined the department voluntarily and were interested to study math. Thus, that was the reason why the researcher has selected that section students purposively. Among those 50 students, 10 females were taken purposely and 15 male students were selected using a lottery system. Therefore, a total of 25 students were involved in the interview and the whole class students were considered to collect data via direct classroom observation.

3.2. Data Gathering Instruments

3.2.1. Interview

The structured and semi-structured interview guide questions were administered for all students before the implementation of the proposed strategies to get the root causes that contribute for low participation of students in Mathematics lessons.

3.2.2. Observation

The researcher has prepared a checklist, one volunteer teacher was invited to conduct three round classroom observations and fill in the checklist based on the level of students' participation in the classroom. Participation was counted once and recorded, if s/he was asking or answering questions and/or forwarding ideas in group discussions.



- ☞ The first-round observation was taken for three days at the beginning of the research, before the implementation of the proposed actions to determine the level of students’ participation;
- ☞ The second observation was also made for three days when the intervention was in progress;
- ☞ Finally, the third-round observation was employed for three days after all the proposed actions were fully implemented to check whether or not the intervention brings any change on students’ classroom participation in mathematics lessons.

3.3. Methods of Data Analysis

The data collected from primary sources through personal interview and those obtained from the direct classroom observations that going on for six weeks’ time were respectively analyzed by means of qualitative and quantitative data analyses approaches using frequency distribution and percentage.

4. Discussion

4.1. Analysis of Data Obtained from Interview

Table 1: Data obtained from personal interview

No.	Questions Raised	Responses	No. of Respondents			%
			F	M	T	
	What do you think would encourage you to participate in the class?	Motivation from the Teacher	4	6	10	40
		Valuing and grading participation	6	9	15	60
	Is your participation level varying from subject to subject and/or teacher to teacher?	Yes	8	12	20	80
		No	2	3	5	20
	If your answer for question 3 above is Yes , explain why?	I Participate more for Major courses than other courses.	6	10	16	80
		I Participate more when teachers use Active (or student – center) Methods	2	2	4	20
	How often do you participate in math classes?	Always and voluntarily	4	8	12	48
		Sometimes and When called by name	6	7	13	52
	What were the major factors that hinder your participation in class? Teacher Related Factors	Lack of motivation from teachers	4	7	11	44
		Shortage of time given by the teacher to think over	6	8	14	56
	Subject Matter Factors	Poor Academic Background of the Subject Matter	3	5	8	32
		Hardness of the Courses’ Contents	7	10	17	68
	Own and Peer Related Factors	Shyness and Fear of taking before peers	5	4	9	36
		Poor Communication Skill in English Language	3	7	10	40
		Lack of Preparation before the Class	2	4	6	24

According to the data in **Table 1** above, similar ideas or the most frequent responses obtained from personal interview of 25 students relating to the factors hindering students’ participation in the class room were tabulated and analyzed in the following way.

Of the total students asked the question “**What encourages you to participate in class?**” More than half (60 %) of the respondents replied that they were encouraged to participate in the class if their teacher is **grading** their participation and 10 (40 %) students replied that **Motivations from Subject Teachers** encourage them to participate in the class. This implies that, valuing and grading the participation of student’s (via, asking & answering questions and forwarding ideas) can encourage the students to participate in the class.

Majority, 20 (80%) of the respondents replied that their participation level varies from subject to subject and/or Teacher to teacher and the rest, 5 (20%) of the respondents suggested that their participation level was not affected by subjects and teachers. The respondents were also asked to verify why their participation level varies from teacher to teacher and/or subject to subject and their responses were analyzed as follows:



Most, 16 of 20 respondents said that their participation varies because they participate more in class when teachers use Active Teaching Methods and the remaining 4 (20 %) students' response showed that as if they gave more attention for their major courses and said "they showed more impression for their Major courses than other courses." This indicates, as the participation level of students largely varies from teacher to teacher, subject teachers should identify and apply appropriate teaching methods that fully engage the students in the lesson.

The response of the students interviewed to the question "How often do you participate in the class?" was analyzed in the following way:

The response of students showed that, 13(52%) were participated sometimes, when called by name and the remaining 12(48%) were participated always and voluntarily.

The last question that the student respondents were asked was "which is the major factor that hinders their participation level in the class" in relation to the three major factors?

a. Teacher Related Factors

Majority 14(56 %) of the respondents said that "shortage of the time given by the subject teachers" hinder their participation in the class and the remaining 11(44 %) were reported that Lack of motivation from subject teachers have an effect on their participation. Thus, it is up to the teacher to allow an appropriate time (or give a wait time) for the students to think over the issue and ask and/or answer question. Moreover, teachers should encourage their students orally and/or using body signals or gestures for their attempts to answer questions.

b. Subject Matter Factors

When 17(68 %) of the respondents identified the hardness of the course content as the major hindering factor for their participation, and the remaining 8(32%) of the students interviewed identified "their poor Academic background the subject" as an influential factor. Thus, the subject teachers shall use strategies that make the lesson contents simple and easy for the students and inspire them to engage in the lesson.

c. Student Related Factors

Most (40 %) of the respondents' replied that their poor communication skill in English language hide them from classroom participation, 9 (36 %) respondents recognized shyness and fear of peers as the second hindering factor for their participation and near quarter (24 %) of the students interviewed said that lack of preparation before the actual class time make them passive listeners in the classroom. Therefore, subject teachers encourage their students to communicate in English language and give endless advice for shy and fear students by letting them to speak with their peer, in their group and gradually encourage them to make speeches in English before the whole class.

4.2. Analysis of Classroom Observation Result before Intervention

Table 2: Result of data from classroom observation before Intervention

No.	Participation Level in the classroom Activities	Days of Classroom Observations														
		Day – One				%	Day – Two				%	Day – Three				%
		M	F	T			M	F	T			M	F	T		
	Number of Students' Participated	15	4	19	38	14	4	18	36	17	3	20	40			
	Number of Students not Participated	25	6	31	62	26	6	32	64	23	7	30	60			

As it is depicted by the data in Table 2, in the first day of classroom observation, out of the total of 50 students, only 19 (38 %) students were participated either by asking or answering questions and/or forwarding ideas during group discussions willingly. On the other hand, the total number of students which didn't participate in the lesson was 31, which was rated as 62 %. From this, it is possible to hypothesize that majority of the students were not participated in the classroom activities actively. This shows that there is low participation of 2nd year Mathematics department students in mathematics lessons.

Similarly, on the second day of classroom observation, only 18(36 %) students were participating in the classroom activities and 32(64 %) of the students were still passively sat in the classroom. This indicates that, majority of the students were still sitting ideal in the classroom when the instructor delivered the lesson. Furthermore, during the third day classroom observation, the total



number of students participated in one or the other way round was below average and it was about 40 %. This infers that over half (60%) of the total numbers of students in that particular class were inactive in the classroom activities.

4.3. The Proposed Strategies

Based on the perceived low participation of 2nd year Mathematics department students in Mathematics lesson, various strategies were proposed. Of these strategies, the following four were proposed and implemented in the actual classroom when the lesson was in progress for six weeks:

1. Taking different Action Strategies.
2. Implementing different Active Learning methods (like: Jigsaw Group, Crossover and Think – Pair –Share) were usually used separately and sometime in combination with brain storming.
3. Increase Wait Time during conversation between the teacher and the students.
4. Assess and Grade Students' Classroom Participation.

The proposed and selected strategies were implemented before and throughout the intervention time and the way how the researcher has applied them are depicted here under.

4.3.1. Taking Different Strategic Actions

Different Strategic actions have been taken before and throughout the intervention time. For instance, before the implementation of the selected active teaching and learning methods, the researcher has executed the following strategic actions.

- ☞ Give orientation on how to perform each active teaching and learning methods.
- ☞ Organize a heterogeneous group and give a role for each student in their group.
- ☞ Encourage students to speak in English.
- ☞ Inform the students that every participation by either asking/or answering question, forward ideas or express own opinion have value and it will be added to their grade.

On the other hand, when the intervention was in progress, some of the strategic actions that the instructor has used were:

- ☞ Approach the students friendly.
- ☞ Giving Verbal rewards (nice, very good, excellent) for active participants.
- ☞ Change the roles and responsibility of each group members per week.
- ☞ Learn students name and call each student by their name.
- ☞ Looking for new hands/or faces to speak.
- ☞ Motivate students for their participation.
- ☞ Giving advice to shy and fear students and asking them opinion or factual questions.
- ☞ Order the students reading assignment and come with some new ideas.

4.3.2. Implementing the Proposed Active Teaching and Learning Methods

Based on the nature of the topic, the instructor has applied one or two or more active learning methods in combination to deliver a single lesson and the most frequently used active learning methods are presented here.

i. Jigsaw Group Method

The instructor implemented this strategy to deliver three sessions. For instance, to teach the lesson with topic “Quadrilaterals and their Properties”, the instructor /or the researcher performed the following tasks procedurally.

- ☞ Firstly, he divided the class into ten jigsaw groups of 5 students with diversity in terms of gender and ability and each member was assigned a code number 1, 2, 3, 4 or 5.
- ☞ Secondly the prepared learning material was divided into 5 segments (as Parallelogram, Rectangle, Square, Rhombus and Trapezium), and each segment were given different groups to discuss on for 10 minutes where the same segment has been given for two groups as we have five segments with ten groups.
- ☞ Thirdly after 10-minute discussion, a new expertise group of members with same code numbers from each group were formed and each member that discuss on the same segment, each two students in the new group were taking about the same segment in the new group for 20 minutes.
- ☞ Lastly, in the remaining 20 minutes, the instructor has been let the students to come back to their original group, summarized the main points of the topic for the whole class, introducing the next topic and asking the students to come up some ideas about the topic.



Crossover Method

The instructor has been used the established Jigsaw group to implement the cross over method to teach some selected lesson topics and "Congruence of plane Figures" was one of these lesson topics that was delivered through this method. Here the students were asked to discuss on the major attributes of self-reliance for 10 minutes in their group. After 10 minutes, two randomly selected students from each group were ordered to move to the next group to share what they have discussed in their group. After each 5 mints, those two students were once again asked to crossover to the next group for more discussion till they address each group. To promote student's participation, the instructor has asked new faces from each group to float over other groups for further discussion whenever he has used this active learning method.

iii. The Think – Pair –Share Method:

Among some of the lesson topics that were delivered by this method, "Properties of Similar Plane Figures" was the one and the instructor has delivered the lesson procedurally.

First the instructor let each student to be in a silent mood for 3 minutes to think about the basic idea of similar figures individually and he/she was ordered to organize his/her responses mentally or in the written form (Think), after 3 minutes each individual was asked to make partner with his/her eye mate or shoulder mate to compare his/her ideas, to make improvements and to organize common ideas about the basic properties of similar objects within 5 minutes (Pair). And then each pair was asked for to join other pair for further discussion on the property of similar plane figures for 20 minutes (Share). Finally, the instructor has called up on at least 3 pairs from different groups to present their common views or thinking about the basic properties of similar figures to the whole class in 20 minutes time.

As this method has requested each student to talk with his/her eye mate or shoulder mate, it has played a great role in avoiding the fear of shy students and hence help them practice to speak before the whole group gradually.

4.3.3. Increase Wait Time

According to Mesa V., (2010) most teachers ask questions and call upon volunteer's or calls on same face for response within 3 seconds and the students confirmed this fact as one of the hindering factors for their poor classroom participation during personal interview. But throughout the intervention period that last for six weeks' time, whenever the instructor asked the questions, he gave a wait time of at least one minute for students to think over and organize their reply. Lastly, the researcher has realized that, increasing wait time, instead of calling up for fast students, has a positive impact on students' participation level in the classroom.

4.3.4. Grading Students' Classroom Participation

Table 3: The Criteria for Grading Students Classroom Participation

Table with 2 columns: Grade and Criteria. It lists five levels of participation from Grade 1 to Grade 5, with corresponding criteria for each level.

MarijaSusak, (2016) strongly agreed that grading participation is an efficient way of improving students' classroom participation level. Thus, to implement this strategy, before starting the intervention, the instructor/or researcher has informed his students that every participation (via asking/answering question or forwarding opinion) will be recorded and added to their grade on a scale from 1 (lowest) through 5 (highest), based on the criteria listed in Table 3 above. Practically, the researcher discovered that the students are more likely to participate in classroom discussion since they were informed that their participation has a positive impact on their grade. Moreover, among the students interviewed, majority (60 %) of the respondents replied that they were encouraged to participate in the class if the teacher is dedicated to give marks for their participation and added it to their grade.



4.4. Analysis of Classroom Observation Result during Intervention

Table 4: Result of data from classroom observation During Intervention

No.	Participation Level in the classroom Activities	Days of Classroom Observations											
		Day – One				Day – Two				Day – Three			%
		M	F	T	%	M	F	T	%	M	F	T	
	Number of Students' Participated	20	3	23	46	22	4	26	52	21	5	27	54
	Number of Students not Participated	20	7	27	54	18	6	24	48	19	5	23	46

The proposed plan reveals that the principal objective of the second-round observation is to see the progress of the students after two weeks intervention. That is, when the teacher is taking different strategic actions (like; informing students that every participation has value and added to the total grade, giving a role for each student in their group, give chance for new hands, encourage them to speak, allow ample time to think over the issue raised and so on) and applying different active teaching and learning methods (such as; Think – Pair – Share, Jigsaw group, Cross Over group etc.), the second round observation was made for three successive periods when the intervention was in progress and the data in Table 4 showed the following results:

In the first day, 23(46%) of them were participated by either answering or asking questions willingly or forwarding valuable ideas during group discussion. On the other hand, 27 (54 %) of a total number of the students were passively sitting in the class. This implies, more than half of the students in the targeted class were still sitting idle. But, on the second day of observation the condition of the first day was reversed and 26(52%) students were actively engaged in the classroom activities and only 24(48%) were passive. From this we can say that over half of the class students have shown aspiration to participate in the class.

Similarly, according to the data in the same Table, on the third day of classroom observation, 27 (54 %) students were actively participating in the classroom by either forwarding sound ideas during group discussion or asking questions and/or answering questions willingly. And the remaining 23(46 %) of the students were passive in the class. Thus, by and large, there is a progress in students' classroom participation level and this may be due to the implementation of some of the proposed strategies and different active teaching and learning methods during lesson delivery.

4.5. Analysis of Classroom Observation Result After the Intervention

Table 5: Result of data from classroom observation After Intervention

No.	Participation Level in the classroom Activities	Days of Classroom Observations											
		Day – One				Day – Two				Day – Three			%
		M	F	T	%	M	F	T	%	M	F	T	
	Number of Students' Participated	26	5	31	62	28	6	34	68	32	8	40	80
	Number of Students not Participated	14	5	19	38	12	4	16	32	8	2	10	20

After the intervention was fully implemented, that is, after the strategic actions and the selected active teaching methods were utilized for the entire six-week period, the third-round observation was conducted for three consecutive periods in different days and the result is analyzed. Thus, according to the data in Table 5, the result of the three days observation was the following.

During the first day, 31 (62 %) students were actively engaged in the classroom activities. This implies 38 % of the students were still inactive in the first day. When we see the second day's classroom observation result, 34 (68 %) of the total students were actively participated in the classroom activities and only 16 (32 %) of the students were become passive sit in the class. In the last day, the number of students that were active in the class was increased and 40 (80 %) of the students were active participants in the class and only 10 (20 %) students were silent in the class on the last day. This implies, students' engagement in the classroom activities shows an impressive progress.

4.6. Evaluating the Change

This part of the study focusses on evaluating the effectiveness of the proposed strategies and the researcher has evaluated the contribution of each strategy in improving student's participation level in math lessons and the result of evaluation showed the following.



- ✓ The researcher observed that marking students’ participation is one of the driving forces that urge the students to participate in the class and hence, **Grading Students’ Participation** is a good strategy.
- ✓ The **Think – Pair – Share** strategy was somehow successful because the students that wouldn’t usually volunteer to forward their ideas in large group and in front of the entire class had a chance to share their thoughts with their peer and in a smaller group setting. Moreover, it could be supporting those students who face anxiety in a large group setting. But sometimes, it was noticed that if they are not dead sure about the question they discussed in pair, they would not volunteer to share rather wait for someone else to speak first. This shows that Think – Pair – Share alone might not be the beneficial way to fully increase participation.
- ✓ During the **Jigsaw Group Activity**, the students were interacting with each other in their groups. However, since this was the **first time** the students had done this type of group work it was a kind of confusing for them for the first week. But, starting from the second week, the students were involved in the Jigsaw group, understood what they were supposed to do. And hence, it went much smoother and the students were ready to teach their Expert groups the material they had learned. The students also seemed to interact more from second week and were eager to teach their part in their Expert groups, knew they had their own responsibility in the group and that no one else would be able to help them to their job. Similar situations were happening during the application of cross over activities.

5. Conclusion and the Future Work

Based on the three round classroom observation checklist results, the average participation level of the students before and after the intervention was compiled and analyzed. And this intern helps the researcher to see the difference and decide on the future work.

Table 6: Average Classroom Participation Level before and after Intervention

No.	Participation Level in the classroom Activities	Average Participation Level							
		Before Intervention			%	After Intervention			%
		M	F	T		M	F	T	
	Number of Students’ Participated	18	4	22	44	29	6	35	70
	Number of Students not Participated	22	6	28	56	11	4	15	30

As can be seen from Table 6 above, we can see that the average level of students’ classroom participation raised from 40 % (before intervention) to 70 % (after intervention), and since **overquarter** of the whole class students were not engaged in the classroom activities. Thus, as arecommendationmoreactive learning strategies should be used by classroom teachers to promote student’s participation and engagement in the classroom activities. Moreover, there isa need for further researcheswith more strategic actionsand interventions to be undertaken to promote students’ classroom participation.

Students Interview Guide Questions

1. What do you think would encourage students to participate in the class?
2. Is student’s participation level varying from subject to subject and/or teacher to teacher?
3. How often do students participate in math class?
4. What were the major factors that hinder student’s participation in math class?

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