

**THE EFFECTIVENESS OF GROUP WORK IN TEACHING AND  
LEARNING MATHEMATICS IN THE SELECTED SECONDARY  
SCHOOLS IN MOMBASA ISLAND MOMBASA  
DISTRICT, KENYA**

BY

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## DECLARATION

I, **SEBASTIAN MUTSWENJE** declare that this project is my original work and has never been presented to any other university for award of any academic certificate or anything similar to such. I solemnly bear and stand to correct any inconsistency.

Signature



SEBASTIAN MUTSWENJE

DATE :


12.4.2009.....

## APPROVAL

This is to acknowledge that this Report has been under my supervision as a university supervisor and is now ready for submission.

Signatures

Date

.....

12<sup>TH</sup> APRIL 2009.....

**MR. TINDI SEJE**

## **DEDICATION**

This work is affectionately dedicated to my children for their support patience and understanding during this period of study not forgetting all those who constantly wished me success.

## **AKNOWLEDGEMENT**

I also owe a lot of appreciation to all those who assisted me in carrying out this research.

I am grateful to my supervisor Mr. Tindi Seje who tirelessly went through my work and inspired me to dig deeper into the core of the matter. His kind criticism, patience and understanding, assisted me a great deal.

I am indebted to my friends who gave me encouragement in time of difficulties. Thanks also go to all those lecturers who impacted professionalism into my work.

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Finally, I would like to thank all my respondents and those within a short notice without which this work would not have been possible.

## DEFINITION OF TERMS

The following terms have been defined in the context of this research;

**Academic performance:** How students more especially girls fair on in school that is in grades and in continuing school.

**Attitudes:** A group is two or more individuals in face-to-face interaction, each aware of the others who belong to the group, and each aware of their positive interdependence as they strive to achieve mutual goals.

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## **ABBREVIATIONS AND ACRONYMS**

|             |  |
|-------------|--|
| <b>KNEC</b> | Kenya National Examination council       |
| <b>KCPE</b> | Kenya Certificate of Primary Education   |
| <b>KCSE</b> | Kenya Certificate of Secondary Education |

## **ABSTRACT**

The purpose of this study was to investigate the effectiveness of group work in teaching and learning mathematics in the selected secondary schools in Mombassa island Mombassa District, Kenya Specific Objectives of the study were: find out the school related factors that hinder the implementation of group work in secondary schools, find out the different forms of group work in secondary schools, and find out what the attitudes of students towards group work in secondary schools.

The methods used for data collection were interview guides to the learners.

The findings revealed that The findings indicated that lack of teachers' efforts to form the groups was the major factor that hindered implementation of group work since groups were mainly formed by the teachers, the ideal form of group work was by students themselves and not the teachers and that all the students had a positive attitude towards the formation of group work.

The study recommended that, government should make it a policy to encourage the formation of group work as a teaching method especially in science subjects like mathematics which students consider to be hard, teachers should encourage the students to form their own groups so long as they are careful not to choose group members who are not serious with the intention of the group formation. Students should be encouraged to form groups in order to encourage them to achieve good academic results in mathematics and indeed in other subjects

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background to the study:**

Although teachers have been trained on various methodology in teaching mathematics this method have not yielded the much desired results. Performance in mathematics has been poor as documented in various reports including the baseline survey of 2005 of Kenya National Examination council (KNEC). The researcher having taught secondary mathematics in various schools was dishearted by the poor performance of mathematics.

The researches having graduated from Kenya science teachers college with a Diploma in science education specializing in maths and biology was adequately trained to handle secondary mathematics.

The researchers used the common known methods like lecturer methods demonstration method and project methods and they yielded very little improvement in the subject, the research also noticed that the students learning mathematics were not interested in learning the subject. He came to conclusion, having taught in many secondary that the methods which he had learned in the college alone could not improve on the subject performance.

He therefore decided to try group work in class and found out that there was a great improvement in the subject

The researcher wants to find out whether the group works method will yield similar results from others selected secondary schools in Mombasa district.

## **1.2 Statement of the problem**

Teaching of mathematics has had great challenges since there is very poor performance of the subject in National examinations.

The researcher has found out that in many public schools most of the students get grade D- and Es in there final examinations. This had worried the researcher and he wish to explore whether the methods that teachers are using are the causes of the problem.

## **1.3 Purpose of the study**

The study that the researcher wishes to undertake was important as it was a requirement for one undergoing the course. The research is also intended to add to the existing knowledge of different methods in teaching and learning mathematics. The researcher wishes to investigate those factors that hinder the implementation of group work in teaching mathematics in secondary schools.

## **1.4 Objectives of the study**

Specifically the study will aim at meeting the following objectives;

- 1 To find out the school related factors that hinder the implementation of group work in secondary schools
- 2 To find out the different forms of group work in secondary schools
- 3 To find out what the attitudes of students towards group work in secondary schools

## **1.5 Research questions**

- 1 What are the school related factors that hinder the implementation of group work in secondary schools?

- 2 What are the different forms of group work in secondary schools
- 3 What are what the attitudes of students towards group work in secondary schools

### **1.6 scope of the study**

The study was confined to some selected secondary schools in Mombasa District. Mombasa district is in Coast Province in Kenya. Due to inadequacy of time and finance the study can not cover the whole district; only eight schools will be sampled from twenty. As a result, this study can not be generalized to the whole country. Due to the fact that the researcher is a part time student, accessibility to the library facilities will be a problem hence literature review will not be as extensive as the researcher would have wished it to be.

### **1.7 Significance of the study**

The study was expected to contribute to the advancement in various methods in teaching and learning mathematics.

The study should also be highlight factors hindering group work method in teach mathematics

The study had practiced significance as it might lead in identifying strengths and weakness in the implementation process

The study will be of immediate benefit to the ministry of Education in formulation of policies aimed at enhancing learning in schools

Secondary school head teachers and mathematics teachers will also benefit from the study solutions to the challenges faced in teaching and learning of mathematics will be suggested;

The study will also form a base in which others can develop their studies  
The peer learning can improve the overall quality of student learning

There are also sound educational reasons for students to participate in group activities

Group work enhance students understanding since students learn from each other and benefit from activities that require them to clarify and refine their understandings of concepts through discussion and rehearsal with peers.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Introduction

Students learn best when they are actively involved in the process. Researcher report that regardless of the subject master students working in small groups tend to learn more of what is taught and retain it longer than when the same content is presented in other instruction formats. Various names have been given to this form of teaching for instance co-operative learning.

Collective learning, learning communities, peer teaching, peer learning, reciprocal learning, team learning, study circles, study groups and groups works.

Barbara, G.D (2003) Tools for Teaching San Francisco Jossey Baas

#### 2.1 Theoretical Frames

##### 2.1.1 Definitions of group and attitude

In our everyday lives the social group affects us in many ways. Social skills are required in many situations and the ability to adapt and behave is vital to how others perceive us. Groups do in many ways determine the lives we live; they influence how we speak, what to wear, how we vote and so forth. How we adjust and react to group influence thus affects our entire lives. There are a variety of different definitions of the social group and we have chosen the following by Johnson and Johnson (1987):

*A group is two or more individuals in face-to-face interaction, each aware of the others who belong to the group, and each aware of their positive interdependence as they strive to achieve mutual goals. (Hogg and Vaughan, 2002)*



Group processes are affected by many parameters such as group size, motivational factors, and cohesiveness for instance. Two effects that are of importance in a classroom are social loafing, and its counterpart; social compensation. Social loafing is a lack of individual effort when working in a group on a collective task (when the loafers' effort is compared to those of other group participants) compared to working individually. This occurs when the individual knows that others are working on the same task and thus creates an opportunity for the lazy person to be inactive. According to Hogg and Vaughn, social loafing is related to the freerider effect. A free rider is a person who benefits from a shared resource without contributing to the work. The difference between a loafer and a free rider is related to motivation. Social loafers lack motivation but still contribute to the product, while a free-rider experiences a different motivation and exploits the group without contributing at all (Hogg and Vaughan, 2002).

The social compensation effect occurs when group members experience social loafing from less motivated group members. In order to compensate, the more motivated group members increase their effort on the collective task. This can even happen when lack of effort or ability is anticipated or is perceived as inadequate (without actually being so) (Hogg and Vaughan, 2002).

Hogg and Vaughan (2002) argue that it is important what the individual feels for the group. If a group member acknowledges that the existing group is significant to his or her self-conception this accelerates peer pressure and increases individual motivation. The group cohesiveness, or the team spirit, is also increased if group members are socially attracted to each other. Social attraction is defined as "Liking for someone based

on common group membership and determined by the person's prototypically of the group" (Hogg and Vaughan, 2002).

The concept of attitudes is widely discussed in many fields of science and is constantly debated, especially in social psychology and philosophy. The word attitude is said to have its origin in the Latin word aptus, which means fit and ready for action. The thoughts and discussions in current research lean more towards a mental construct that precedes a persons' behaviour and affects choices and actions. One definition claims that an attitude is "A relatively enduring organisation of beliefs, feelings and behavioural tendencies towards socially significant objects, groups, events or symbols (Hogg and Vaughan, 2002).

The function and formation of attitudes are also interesting. It is argued that the purpose of attitudes is that they save energy, that when we relate to socially significant objects or situations, we do not have to figure out from scratch how to behave. Instead we use our mental construction as a short cut that saves effort. Another proposition is that attitudes provide a possibility to maximise the chance of having positive experiences of objects and situations, while minimising negative experiences. The fact that you have an attitude is beneficial due to the orientation it provides you (Hogg and Vaughan, 2002).

Attitude formation is the process of creating and forming an attitude. It is relevant for teachers in the school context since they are directly involved in this formation when providing frame works and criteria for group work as the attitude object. Hogg and Vaughan argue that attitudes are learned and not innate. You learn attitudes when you take part of the socialization process, either through direct experiences or indirectly through the contacts and communication with others. Cognitive

processes, through which knowledge is acquired, where memory, thinking and perception are involved, also contribute to the learning of attitudes (Hogg and Vaughan, 2002).

### **2.1. 2 A socio-cultural perspective on learning**

We are of the opinion that group work has many advantages as long as you can provide a framework for this work method that pupils understand and accept. The understanding that learning takes place while discussing is vital to convey and also that the subject matter is understood when pupils share their different thoughts.

According to Dysthe, knowledge is distributed between people in a community. People have different skills and competences, and only if everyone shares, the whole scope of the matter at hand can be understood. Every person that contributes adds a dimension or extrapolates what has been said before. In the classroom context pupils need to formulate their understanding in order to gain a deeper knowledge. By sharing their different opinions and views, pupils contribute to the whole and to the "polyphonic voice" that is important to the learning process. If the pupils work individually their understandings will be limited and incomprehensive compared to the mutual understanding that emerges through group work.

### **2.2 Related research**

Christer Stensmo, (1997) discusses group work both in theory and practice. Along with his own notes he brings out valuable parts from Arfwedson & Arfwedson's book from 1981 describing the whole process of planning and performing group work in the school setting. Stensmo also includes valuable points from Cohen's research on the subject matter. We are indebted to Stensmo's work in many ways. He sums up

what we consider to be the main points of Arfwedson & Arfwedson and Cohen. When we refer to either Cohen or Arfwedson & Arfwedson (2002) in this section we do so through Stensmo.

According to Stensmo, (1997) well-performed group work should contain both social and cognitive teaching goals. The cognitive goals could be those of understanding, analysis etc. He stresses that it is important that the task is of such complexity that it gains from being solved in a group in order for the group members to cooperate instead of dividing the task between them. And we believe that the purpose of the group work is lost if the cooperation is lost. The social goals are such as cooperation skills, understanding of other people's thoughts and feelings, empathy and conflict management. He also suggests that group work could be used to enhance friendly relationships and for teaching students to take responsibility

As i have already mentioned above, not all tasks are suitable for group work. Stensmo describes what to consider when constructing an assignment for group work. The task must have more than one answer, contain a problem or appeal to the pupils' own interests. Furthermore, it is important that the task requires all pupils' participation as well as different senses such as hearing, listening, seeing etc. The assignment should also require different strategies and ways of acting in order for the pupils to be forced to contribute and actively take part. Furthermore the task should be challenging to inspire the students. He also underlines that it is not suitable to work in groups to solve tasks that will be quicker solved single-handedly by each pupil since they will take that course of action in order to save time (Stensmo, 1997).

Furthermore, Stensmo discusses the process of group formation since it is important for the teacher to consider the dynamics of different groups when planning the group work. Basically, the most important thing is to be well aware of why you as teacher are organizing the groups as you do. Moreover, it is important to vary the method for organising the students, since you tend to end up with the same groups each time and that may affect the end result. According to Cohen it is important that the teacher always organises the groups and that he or she does so in accordance with criteria set in advance and that both social- and intellectual factors are considered. One social factor could be that everyone in a class should have the opportunity to work with each other in order for all to get to know each other better.

Intellectual factors to be considered are for instance that high achieving students could gain from working with low achieving students and vice versa. Gender is another factor that should be taken into consideration since Cohen is of the understanding that groups should consist of a mixture of both sexes in order to be well functioning. One of the main reasons why Cohen is of the opinion that the teacher should choose the groups is that if you leave this decision up to the students they tend to want to work with their friends and when doing so they tend to spend time playing and dealing with private matters instead of actively focusing on the task.

Stensmo also states that a group should not contain more than five members in order to be most efficient. The reason is that the more members a group contains the more different personalities there are to coordinate and it also makes it harder for the pupils to communicate in a natural way (Stensmo, 1997).

Above you find the frames for a well functioning group work, according to Stensmo. However, using group work as a teaching method is also connected with different sets of problems. Even though group work is said to be a recommended way of working in schools, it has been shown by research done by Skolverket in Sweden that teachers tend to avoid it to quite a great extent. Stensmo lists a number of reasons for this and I have chosen to go about it in the same way. The following points are a summarized and translated version of the ones Stensmo lists:

1. All pupils do not participate in the activity to the same extent. Some students tend to take a free ride on the other more motivated pupils.
2. Some students insist of getting their will through and want everything done according to their beliefs in order to take any part of the group work.
3. Some students have the status of experts and lead the group even when they lack the expertise in accordance to the task in question. This might lead to that they lead the whole group in the wrong direction even though other students perhaps would have been more able.

Because of the status issue these pupils do not get their say in the matter.

4. Groups could be confused because of unclear instructions. Cohen states that it is important to provide each group member with clear instructions, preferably written ones.

5. Pupils are often not practised in group work methodology and are therefore unaware of the different aspects of working together in a group, such as leadership, cooperation techniques, coordination and how to divide the workload. Pupils also tend to be unaware of other pupils'

strengths and weaknesses and tend to focus more on what status a particular pupil has. Cohen states in his research that it is a mistake to believe that pupils are able to do group work without any social training in advance.

6. Group work often tends to involve limited group work since it contains little or no interaction. Pupils tend to divide different parts of the task amongst them and everyone gives an account for their own little piece of the group work. Thus, everyone performs a small piece of individual work, instead of working as a group with a mutual task and goal.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.0 Introduction**

This chapter explains the methods that the researcher will use to select the geographical areas, from which research was carried out and methods of selection of respondents. It also explains the methods used to collect process and analyze data.

#### **3.1 Research Design**

This study followed a descriptive research design because the researcher used one Division in the District as a case study. Qualitative method was used in this study. The quantitative and qualitative techniques were used to collect and analyze data on the parenthood practices.

#### **3.2 Study Population**

The study was carried out in the selected primary schools in Mombasa district, Coast Province in Kenya. The study involved pupils and teachers.

#### **3.3 Sample Framework**

##### **3.3.1 Sample Size**

A total of fifty respondents were used from the total population of the schools which were used for this study.

##### **3.3.2 Sample Technique**

Using a convenient sampling technique, a total of fifty respondents were picked at random to participate in this study.



### **3.3.3 Sample Procedure**

In carrying out research the researcher first got a release letter from the course administrators which the researcher took to the schools under study. The researcher then was given permission by the authority to access information from the school.

## **3.4 Methods for Data Collection**

### **3.4.1 Instruments**

- **Interviews**

Interviews were held with students to get their perceptions since the research was mainly qualitative

### **3.4.2 Sources of Data**

This study used both primary and secondary data:

Primary data was collected using Interview Guides, which was given to students.

Secondary data was through Document analysis in the form of Reports, training manual, news papers, and journals for the period under study was read and the required data collected from them.

## **3.5 Data Processing and Analysis**

Qualitative data involved three sets of activities which included editing, coding and frequency tabulations. Editing was done by looking through each of the field responses from questionnaires and interview guides ascertaining that every applicable question has an answer and all errors eliminated for the completeness, accuracy and uniformity.

The researcher then proceeded on to coding the various responses given to particular questions that lack coding frames, he then established how many times each alternative response category was given an answer using tally marks which was later added up.

Data was then presented in frequency tabulations rendering it ready for interpretation. Quotations and field notes made were also included.

## CHAPTER FOUR

### PRESENTATION OF RESEARCH FINDINGS, DISCUSSION AND INTERPRETATION

#### 4.0 Introduction

This chapter is a presentation; interpretation and discussion of the findings. The results are presented in form of quotations since the study was mainly qualitative. It focuses on the effectiveness of group work in teaching and learning mathematics in the selected schools of Mobasa Island, Mombasa District, Kenya

#### 4.1 How should group work be used?

When asked to describe a well functioning group work the interviewees all agreed that it is important that all participants contribute equally to the work load. They also stress that an open communication within the group is important. It is also important that teachers evaluate the process that leads to the result to passing. One respondent said:

*If, as an example, we look at our school, we have a meeting with our teacher every week, and check what we are doing, and we send in what we have done, as individuals, she is supposed to grade our work project as a whole, as well as our individual effort. But this is a pretty large project, if it is a smaller one, when you have one month as time limit, the teacher never participates, I have never experienced that, that the teacher participate.*

One student describes the perfect group work as follows, "A well functioning group work would like have been if all reflected upon the assignment and we worked a bit at home with the task and were interested and came up with new ideas and such ... and then also when

you then present it or do a presentation [...] everyone has prepared so that no one comes unprepared because it affects the whole group and then it feels like everyone has to take the blame”.

Hogg and Vaughan (2002) argue that social loafing is a decline in individual effort when working in a group on a collective task compared to working individually. By this they mean that when you compare the pupils' efforts to each other within the group it is sometimes the case that pupils' perform less than they would have done if they had worked on the same task on an individual basis. Stensmo (1997) also acknowledges this to be a problem when using group work in schools since not all pupils participate to the same extent. Some pupils tend to just take a free ride on the other more active pupils. The answers we received from our interviewees point to that working in groups often is a problem because not all group members make an effort. This is in line with what the researchers say. Both Hogg and Vaughan and Stensmo (1997) bring up the free rider effect, which basically means that a person benefits from a shared resource such as group work without contributing to the work. The difference from the above mentioned social loafer is that the free rider often is motivated to cash in on the award, as for instance a high grade, without making the effort, whereas the social loafer often suffers a lack of motivation but is not deliberately taking advantage of his peers. However, we have found no evidence in our interviews that the students distinguish between the two, they merely state that some pupils do not do their share of the work load

### **Advantages of group work**

When the informants were asked to discuss the advantages of group work, many of them agreed on the importance of sharing points of views with group members because this makes you see things differently.

One respondent said that:

*"You look upon it in many ways [...] I may interpret in one way, someone else in another, you sort of get different points of views, and you can change ideas, and ... eh ... if you do group work it often become much broader than an individual work so this should also mean that it becomes better. That may not always be the case, sometimes it is better to do it on your own but it is almost always like this, that it is good to work in groups."*

Another respondent said:

*"I suppose that you learn to listen to other people's views and that you think harder and make an effort to cooperate and by this ... eh ... perhaps you push yourself to work in a way you have not done before and then you also get results that perhaps are much better than if you would have done it alone so that you use that method in the future when working alone that is. [...] then it also prepares one for work life ... so in work life it is much like that you have to cooperate and such and sometimes perhaps with people you do not Cooperate with ordinarily outside work and then it is very good preparation"*.

When discussing their preferences on how to form the groups, whether the teacher should divide them into groups or if it was up to the pupils, all interviewees agreed that they preferred to choose themselves. This is because it leads to better results when you know the group members well and if your friends participate in a project you have more fun, which also in the end gives better grades.

One student agrees:

*“Both ways are good [...] you socialize more with some people and that is positive. And when you get to choose yourself it is good for the performance. ”When asked to elaborate on how this enhances performance, he continues: “Because then you know that person, it will be good when everyone is serious and the result often is improved.”*

Another student states:

” I think that to randomise groups is the best way, but if I work with a project for a long period, you are forced to get along with those in the group, then you must get to choose yourself. That may not be the best, it might be that someone gets left out, neither pupils nor teachers want that.”

#### **4.2 How group work is used in the school settings.**

When we asked the informants how often they participated in group work in school they agreed that it happens every day, either as discussions during classes in smaller groups or larger group work that overlap with each other.

Two of the interviewees said:

*“I would say we do it pretty often ... it works very well during classes, there is a great difference because then we have a teacher who is*

*watching what we do ... and ... outside the class room, and like that, it does not work as well."*

The informants were also asked to discuss what guidelines concerning group work they have been provided with. The idea that all group members should participate in the decision making is brought up by one of the informants. This is in line with what Stensmo (1997) argues when discussing that all group members should participate (Stensmo, 1997). Otherwise the informants state that related tutoring is scarce. This is a fact that we consider to be one of the main problems that affect pupils' attitudes towards group work in a negative way. Not to be able to draw from adequate strategies when using this method hampers the pupil's ability to learn and to work in an effective way together.

When we asked the informants to discuss the disadvantages of group work three of them agreed that the work process itself was not visible to any greater extent. The individual contributions were not visible enough, and much group work was hampered by group members that did not make an effort.

One respondent states that:

*"Well, it is first and foremost that someone might sneak away, and then that, the school world is very, like, concentrated on results, so that, it might be harder to show what the individual has done in group work compared to individual work."*

Another respondent said:

*"In the end, it is the presentation that is most important since that is what is being assessed, we attend school to learn but also to get assessed, and the process itself is perhaps not always seen, the work itself up to the group work day (the day of presentation. Authors' comment), there are*

*those who go down to the library that the teachers never see and it is the result that you see.*

### **How group work take place**

When asked how group formation actually takes place the informants agree that when it comes to more extensive group work they often get to decide themselves. Two of the interviewees experience that when having smaller discussions the teachers randomise the groups.

One student said:

*“Mostly we decide ourselves, or we do it as we are placed, and then we do it automatically together with those you have chosen to sit next to”.*

### **Motivation of group work by teachers**

When asked how group work is motivated by teachers i do not find any similar points in the answers, three have different ideas and one cannot remember any teacher that motivates this work method.

One student said:

*“we had a mathematics teacher who did a very good thing and told exactly what each person in the group had done and afterwards he told us exactly why and so ... that was good but then there are those teachers that just divide you up quickly and effectively and then it often turns out that they do not save any time in the end because many students just sit there and you do not know why you are supposed to do it and then ... do not put any time into it simply so it would have been good if they had taken more time to it maybe and well ... “.*

On another occasions they have said:



‘Now you have to work in groups because there is too much work to be done individually’. That is probably the only reason I have heard, that and the fact that you learn how to communicate and to consider others’ feelings”.

When the informants discussed how teachers motivate group work as a teaching method they argue that there are seldom given reasons why. One of the informants has been given the explanation that the task in question is too extensive to handle alone, and that you learn how to communicate when working in groups. Another interviewee argues that the lack of information on why they use group work is related to teachers believing that pupils have this knowledge already. We argue that you cannot take this for granted since pupils tend to work individually when working in groups. The concept that you learn from others was not brought up by any of the informants. Dysthe draws upon the social context when discussing that learning takes place when pupils share their knowledge with others. She emphasises that knowledge is distributed between people since they possess different competences needed to apprehend the whole (Dysthe, 1995). These ideas were not brought up by the informants.

#### **4.3 The interviewees’ own views of group work**

When we discussed why informants’ views on why teachers use group work as a teaching method two agreed on the preparatory aspects of work life. Two of the interviewees agreed on this method as means for the teacher to relax and not having to teach in front of the class all the time.

One respondent said:

*“Since society looks like it does today, where you work a lot in groups, so to prepare, and then you have the student democracy aspect. Many prefer*

*group work, and if the majority wants it, group work should be used. It may also be nice for the teacher not having to teach in front of the class time after time, they also have to relax a bit”.*

Another one said:

*“I think they want us to get a better spirit in class, and then I believe it is meant that those who are better ... should assist the weaker ones so you in a way can create some sort of discussion, outside the group work as well, and talk and help and such ... some sort of higher level gets obtained in class perhaps ... and then I think it is a good way of learning, that is, if you discuss something the pupils learn better, I think ...*

When the informants were asked how they learn various subjects while working in groups they all experience that learning does not take place in the group. Instead it is common to divide the work-load into smaller parts and then unite all parts into a whole for the presentation.

One interviewee said:

*“You learn the topic matter of what you are doing. I do not believe you think that much because it is pretty much individual work in a group work you sit alone and seek your own facts ... and it is like you search for the specific thing you do not get the meaning of the whole subject so I believe it is very specific when you work in groups because you divide it up ... like I have this part and the other person has that part and then you do not learn that much ...*

When asked how they generally feel about working in groups, two of our interviewees claim that it is a well functioning work method, one even argues that it is the most effective method in its best forms. One argues

that it has advantages only when teachers monitor the work since students tends to work to get good grades when they are being observed.

One respondent said:

*“It depends so much on what group you are in. In some groups it is very boring and hard and elongated and in some groups it can be fun but it happens so often that you are in bad.”*

### **Attitudes**

This focus area contains the thoughts and ideas that form our informants' views on group work. Their previous experiences contribute to a high extent to why they think as they do. According to theory on attitude formation, attitudes are shaped over a longer period of time through the interactions with others.

Hogg and Vaughan (2002) argue that attitudes are a set of beliefs and feelings towards significant objects, the significant object in this case being group work. Our interviewees' attitudes towards why teachers use group work differ and they are uncertain why this method is used so extensively. We argue that teachers should provide more guidelines on why group work enhances performance and provide more scaffolding to how it should be done. Dysthe (2002) claims that knowledge is constructed through social cooperation in a cultural context and by discussing and reformulating their acquired knowledge pupils achieve a deeper understanding, (Dysthe, 2002).

It is therefore important to stress group processes and the co-operational effort when initiating group work; pupils should discuss findings and facts within the group and share their opinions and views. This becomes clear when we examined the data concerning our interviewees' ideas on how learning takes place when working in groups. They argued that

learning often takes place individually in group work because they divide the task into smaller ones and assign these to the group members in order to be more effective.

This is in line with what Stensmo (1997) says when discussing problems related to group work. He raises the awareness of group work tending to be no group work at all since it contains little or no interaction. Pupils often divide different parts of the task between them and perform individual work instead of working as a group in order to obtain their mutual goal.

Our informants are well aware of their ways and strategies when working in groups. They are high performing pupils and they naturally want higher grades. If a group is dysfunctional they work harder or try to motivate less effective group members in different ways. This becomes evident when the interviewees discuss the pros and cons of group work. The aspect of social compensation is therefore central since the informants compensate for less motivated group members.

The interviewees agreed to a higher extent when discussing the downsides of group work. One major point they brought up was that the group process was not assessed. The informants also worried about their individual effort not being graded fairly compared to other group members. Another major issue was that less motivated group members did not contribute enough to the work load. This is in line with the concept of social loafing, which Hogg and Vaughan describes as a decline in individual effort when working in a group on a collective task (when the loafers' effort is compared to those of other group participants) compared to working individually

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.0 Introduction**

The aim of this report was to discover what attitudes students at secondary level have toward group work as one of the methods for teaching and learning mathematics. Since i chose a qualitative approach for this report, i had to limit my research to interviewing only a few students. In order to obtain relevant data we asked them questions concerning; their ideas on well functioning group work, how they perceive their reality, and their own thoughts about group work.

#### **5.1 Summary of Findings**

The first objective sought to investigate the school related factors that hinder the implementation of group work in secondary schools. The findings indicated that lack of teachers' efforts to form the groups was the major factor that hindered implementation of group work since groups were mainly formed by the teachers

The second objective sought to investigate the ideal form of group work. The findings revealed that the ideal form of group work was by students themselves and not the teachers

The third objective sought to investigate attitudes of students towards the formation of group work. The findings revealed that all the students had a positive attitude towards the formation of group work.

## **5.2 Conclusion**

The first objective sought to investigate the school related factors that hinder the implementation of group work in secondary schools. The findings come to the conclusion that there was no major hindrance to the formation of group work.

The second objective sought to investigate the ideal form of group work. The findings come to the conclusion that the ideal form of group work is by the students themselves.

The third objective sought to investigate attitudes of students towards the formation of group work. The findings come to the conclusion that students had no problem with forming groups in class especially if they choose who should be in their group.

## **5.3 Recommendations**

Bases on the findings of the study, the following recommendations are made;

The government should make it a policy to encourage the formation of group work as a teaching method especially in science subjects like mathematics which students consider to be hard.

The school authorities especially the head teachers of the schools should make a follow up of how and when group work teaching should be done in order to ensure that they are effective.

The teachers should encourage the students to form their own groups so long as they are careful not to choose group members who are not serious with the intention of the group formation.

The students should be encouraged to form groups in order to encourage them to achieve good academic results in mathematics and indeed in other subjects.

#### **5.4 Areas further research**

Research should be done on the attitudes of school authorities towards the group work teaching method

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## **FOCUS GROUP DISCUSSION GUIDE FOR THE STUDENTS**

1. Describe a typical occasion when doing group work in class.
2. What do you think characterize a well functioning group work?
3. What are the advantages by using group work as work method?
4. What do you think the disadvantages are?
5. How often do you participate in group work during a week in school (three persons or more)?
6. How are the groups formed? By the teachers or do the pupils decide for themselves?
7. How is group work motivated as teaching-method by the teacher?
8. What kind of tutoring related to group work have you received during your education?
9. What is the ideal ratio between individual work and group work in school?
10. When working in a group, do you feel that you get your own ideas through?
11. In what way do you feel that you learn the topic (based on the above mentioned example) when working in groups?
12. Which forms of presentation do you find suitable when working in groups?
13. Which forms of presentation do you find not suitable when working in groups?
14. What parts of you personality do you think become most prominent when you are working in a group?
15. How do you generally feel about working in groups?
16. Is there anything you would like to add that we have not brought up in the interview?