Implementation of Pair Work and Group Work for Creation of Interaction Opportunities for Learners in Large Classes: The Viability of the Two Strategies

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Abstract

This paper is based on an action research carried out in two Kenyan Primary schools in Nairobi. The purpose was to implement group work and pair work to improve teaching and learning in large classes by creating interaction opportunities for learners. This was a mixed method study of dominant/less dominant design where interviews and structured and unstructured observations were used as methods of data collection.The study established that systematic incorporation of cooperative learning basic elements in group work made it more viable in creating interaction opportunities for learners in large classes. Though pair work was modified to enable learners to be interactively accountable both at individual and level and as pairs, it was not as successful as expected.

Key words: Interaction, pair work, group work

1. Introduction

Large classes are largely associated with the sudden re-introduction of Free Primary Education (FPE) in Kenya in 2003. This led to an enrolment of an extra two million pupil (Fleshman, 2010) in addition to the 5.9 million (USAID Kenya, 2006).However, there was no concomitant increase in the number of teachers. The upsurge resulted to large classes of between 50 and 100 children and classes of over 100 are not uncommon. For example, Van'tErve (2003) reports a class of 117 children in a slum school in Nairobi.

Given the sudden increase in pupil enrolment, teachers were neither prepared, nor professionally supported to teach and manage large numbers of learners. They encounter a number of challenges which impact negatively on the quality of teaching and learning. Teachers find it difficult to initiate participatory, activity-based learning, especially learner verbal interaction because of the complexities of teaching and managing large classes (Blatchford and Martin, 1998). Typically, in Kenyan classrooms, there is a dominance of teacher-led recitation in which rote and repetition dominate the classroom discourse with little attention being paid to securing pupil understanding (Pontefract and Hardman, 2005). What exists is teacher-pupil interaction which is often only cursory to enable teachers establish shared attention (Pontefract and Hardman, 2005; Abdi-Kadir& Hardman, 2007).

Accordingly, interaction "often takes the form of lengthy recitations of questions (by the teacher) and answer within the Initiation, Response and Follow-up (IRF) structure" (Abdi-Kadir&Hardman, 2007 p. 2). Hence, learner interaction is minimal. This type of classroom process has been blamed for declining pupil performance, and intense debates have emerged among stakeholders about how the situation can be improved.

This paper examines the implementation of both pair and group work for improving teaching and learningin large classes, through a collaborative action research process for creation of interaction opportunities for learners. The viability of the two strategies is gauged as indicated by the observation data and as expressed by teachers and learners as they experienced the teaching and learning process.

2. Methodology

This study aimed at helping teachers to improve classroom process in large classes by implementing pair and group work for creation of interaction opportunities for learners. An action research approach with collaborative participation as a central characteristic (Punch, 2005) was deemed appropriate. The cyclic process of action research of planning, acting, observing and re-planning at the intervention stage was adhered to as the strategies were improved to create opportunities for learner interaction.

2.1 Sample

This study was carried out in two schools with large classes, A and B, in Nairobi, Kenya, with four teachers of social studies coded for anonymity purpose as AF, AM, BF1 and BF2. Whilst school A was a slum school located in lower income area, School B was located in middle - low income area. AF and AM (F- female; M-male) were teachers in school A and BF1 and BF2 were both female teachers in schools B. The sample also included groups of students of six from each of the teachers' classes who were randomly selected and identified as AGD1; AGD2 from school A and BGD1 and BGD2 from school B. The numbers in the classrooms ranged

from 52– 64. Whilst BF1 had 64 learners, BF2, AF, and AM had 52, 54 and 56 respectively.

3. Methods of data collection

Structured and relatively unstructured observations were methods of data collection at the intervention stage as the two strategies were improved and implemented; interviews were used to find out teachers and learners perception and experiences of teaching and learning of the strategies. This implies that this was a mixed method study of dominant/less dominant design (Cresswell, 1994). Quantitative data was used to reinforce qualitative data (Pontefract, 2002), and helped in the interpretative process (Hinchey, 2008). This complementary aspect strengthened the study (Croll, 1986).

For structured observations, I concurrently used two different schedules as indicated below.

3.1 Observation schedule 1- distribution of teaching and learning activities

This schedule was a combination of the observation schedules of Lawrence, Huffman &Appledon (2002) and Ackers& Hardman (2001). While I adapted the time sampling from the former authors, the activity categories of *Teacher-Led Recitation (TLR), Seat Work (SW), Pair Work (PW) and Group Work (GW) and pupil demonstration* are from the latter (table 1). These were deemed appropriate as they had been identified and tested by Ackers and Hardman's (2001) study on "Interaction in Kenyan primary schools" and found to give a clear picture of a typical Kenyan classroom process.

Using this schedule I also carried out time sampling- observed for a specified duration at specified intervals (Gillham, 2008) and recorded the activities, the duration of each activity, and who was involved (Robinson, 1994). These gave periodic snapshots of the classroom proceedings, and the data was used to assess teachers and learners activities and their interaction engagement in terms of High Engagement (HE) for 80% and above, Low Engagement (LE) for 20% and below and Mixed Engagement (ME) for interaction engagement between the two above values (World Bank, 2003).

Table 1: Observation schedule1: Distribution of teaching and learning activities

Time in minutes	0-5	5-10	1-15	15-20	20-25	25-30	30-35	35-40	40-45
Teaching and learning activity/Instruction									
Student engagement									

3.1.1 Structured observations 2- teacher-learner question interaction

Questioning as an integral part of teaching and learning contributes to the type of interaction that occurs in any classroom. Hence, this was explicitly depicted in an observation schedule to clearly illustrate how questioning impacted on classroom interaction. This schedule with Initiation (in form of questions asked, Response and Feedback (IRF) interaction categories created by Sinclair & Coulthard (1975) was deemed appropriate since it had been tried out by Pontefract (2002) in her study to capture classroom discourse in Kenyan primary schools. However, this structure was slightly modified to I[**d**] RF with additional category *of who questions were directed to[**d**]*) as indicated in table 2.

Table 2: Observation schedule 2: Teachers – Learner Question Interaction Protocol:

Type of question (Initiation –I)	Directed to (Directed-D)	Type of Response (Response - R)	Teacher's feedback (Feedback – F)
-Open recall (OR) -Open thought (OT) -Closed thought (CT) -Closed recall (CR)	-Whole class (WC) -Groups (G) -Individuals (I)	- Choral (C) -1-3 words -Full answer (FA) -Extended answer (EA) -Pupil question (PQ)	-Attitude -++; +; O; -;--- -Teacher gives answer (TGA) -Repeats (RPTS) -Rephrases (RPS) -Probes (P) -Extended answer (EA) -High level evaluation (HLE)

To complement the above schedules I also used relatively unstructured descriptive schedules as depicted in table 3 below. This did not only make the observations more responsive and open-minded and recorded the unexpected, but they also compensated for the insufficiency in the structured observation schedules Kemmis, S. McTaggart, R. and Retallick, J., 2004; Delmont& Hamilton, 1984). I was also able to reconcile the notes with both schedules for accuracy purposes. For example, accurate time sampling was confirmed from the field notes and vice versa. Moreover, I[d] RF interaction categories were verified using the field notes. As Gillham (2008) aptly points out "*Detailed recording, in words or images...brings into focus what is there to be seen or understood.*" (Gillham, 2008 p. 5) (Author's Italics).

Table 3: Descriptive Observation Schedule

Time Duration	Teacher's Actions	Learners Actions

3.1.2 Use of Audio recorder

To gauge the type, amount and meaningfulness of interaction among groups, I randomly chose one group and placed a voice recorder in its midst to capture this data. This complemented observation notes. This data enabled me to monitor group conversations and record its verbal interaction developments (Hopkins, 2002), that helped to gauge the amount of improvement that occurred.   The development of group's interaction was tressed (ibid) in terms of how many learners were engaged. It also captured the patterns of interaction which assisted in the analysis of how meaningful the interactions were. Ultimately enabling us to consider the success of the tasks, and any intervention or changes needed (Barnes and Todd, 1995).

4.   Data Analysis

I analysed data in accordance to methods used for their collection.

4.1 Analysis of Semi-Structured Interviews; Non-Structured Observations

The Huberman and Miles approach (Robson, 2002; Punch, 2005) was used to analyse the interviews. The essential activities of data reduction, and conclusion drawing/verification (Robson, 2000; Walliman, 2006) were utilized. I used two different approaches to analyse structured observations. The distribution of teaching and learning activities and the question –answer interaction observations were analysed using time and discourse analysis respectively. I analyzed time spent teaching and learning activities were quantified in minutes and shown as proportions of the lessons (Ackers & Hardman, 2001) portraying how the different activities created interaction opportunities for learners.   Discourse analysis was used to analyse the teacher-learner question interaction. The I[d]RF structure depicting interaction moves were adhered to (Pontefract & Hardman (2005). The type of questions, whom they were directed to, learners' responses, and teachers' feedback (see observation schedule 2) were identified. The numbers of learners involved werealso analysed. These gave an indication of how types of questions contributed to creation of interaction opportunities. Teacher's feedback gave an indication of how it either opened up or limited opportunities for interaction.

The audio-recorded data was transcribed word for word and analysed for the amount of time spent on verbal interaction, the number of learners involved and patterns revealing how meaningful the interaction was. However, as revealed earlier, this data was from one particular group in each of the classes, which perhaps reflected the situation in other groups. The amount of interaction was objectively measured in line with the number of learners who interacted according to the values shown inMeaningfulness of the discourses was analysed in terms of the type of interaction patterns as shown below:

Points generated(P);
Reinforcing Point (RP);
Question (Q);
Repeat of Point (ROP);
Other comment/Remark (OC/R);
Clarify Point (CP); and
Incomplete Point (ICP)

These categories were deemed appropriate since they depicted the discourse group members were involved in.

5.   Implementation of the Strategies

5.1 Cyclic implementation of pair work

For pair work, learners were not re-arranged. This decision was taken because moving learners would have taken more of the 35 minutes teaching time and caused a lot of noise and commotion.Rather they were to work the way they were seated with their desk partners. However, due to absenteeism desks had varied number of learners, ranging from 2-4. Hence, learners who were seated in fours were instructed to pair up, whilst the learners seated in threes were left to work as such.

During the cyclic implementation of pair work, emphasis was on both individual and pair interaction accountability. We had either individual or pair written products as evidence of accountability. Hence, the regular think-pair share- was improved to think-pair-share-write, for pair interaction accountability, think-write-pair-share, for individual interaction accountability and turn-taking pair work for both individual and pair interaction accountability as illustrated in the figure 1 below. This was an influence and extension of Kagan's (1990) idea of "think-write-pair-share.

Figure 1: Cyclic implementation of pair work
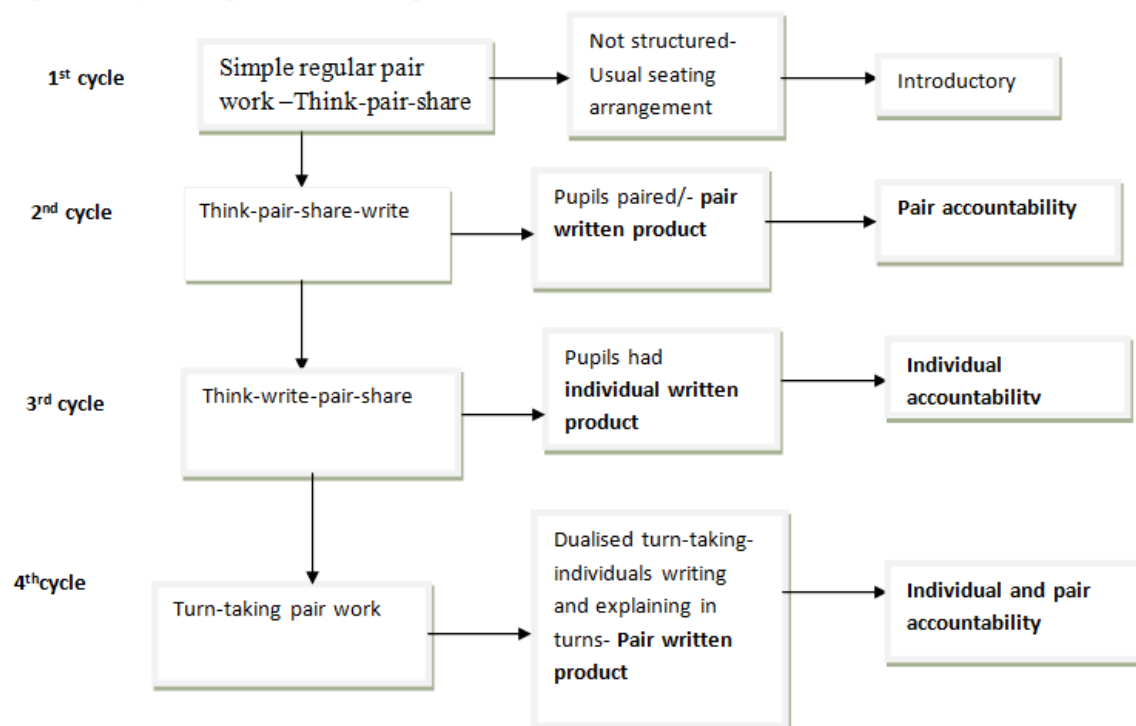
The above improvements on pair work resulted to interaction outcomes as illustrated in table 4.

5.1.2 Cyclic Implementation of group work
Group work was improved to incorporate certain elements of cooperative learning: Positive interdependence, face-to-face promotive interaction and introduction of social skills, Moreover, certain learners within the groups were selected as group leaders, secretaries, and presenters. Whilst group leaders were to ensure that members were interactively on task, secretaries and presenters were to write the group's points and present them to the class during elicitation session respectively.

Analysis of the first cycle group interaction indicated that one or two members dominated the discussions. To curb this situation, we introduced the role of idea generator to balance member interaction and to ensure that all in groups interacted. However, though this made all members to interact, interaction levels were varied.

There was some evidence that during the second cycle, most of the interaction in one class was not about and on task. While in another class, learners agonised about how to respond to the question asked. Reflections revealed that this might have been caused by the nature of the tasks –relatively too challenging.

To curb off-task interaction, we argued that the roles, especially group leaders' roles have to be strengthened. This was to be done by teachers constantly reminding the group leaders of their responsibilities. We also agreed that questions should not be too challenging to enable learners have meaningful interactions.

For individual accountability purpose, teachers chose any member of the group to give an answer during the elicitation session. This ensured that every member had some interest in the task –would not only listen keenly to others ideas, but would also strive to make some contribution.

The above modifications and improvements are as illustrated in figure 2 below;

Figure 2: Cyclic implementation of group work
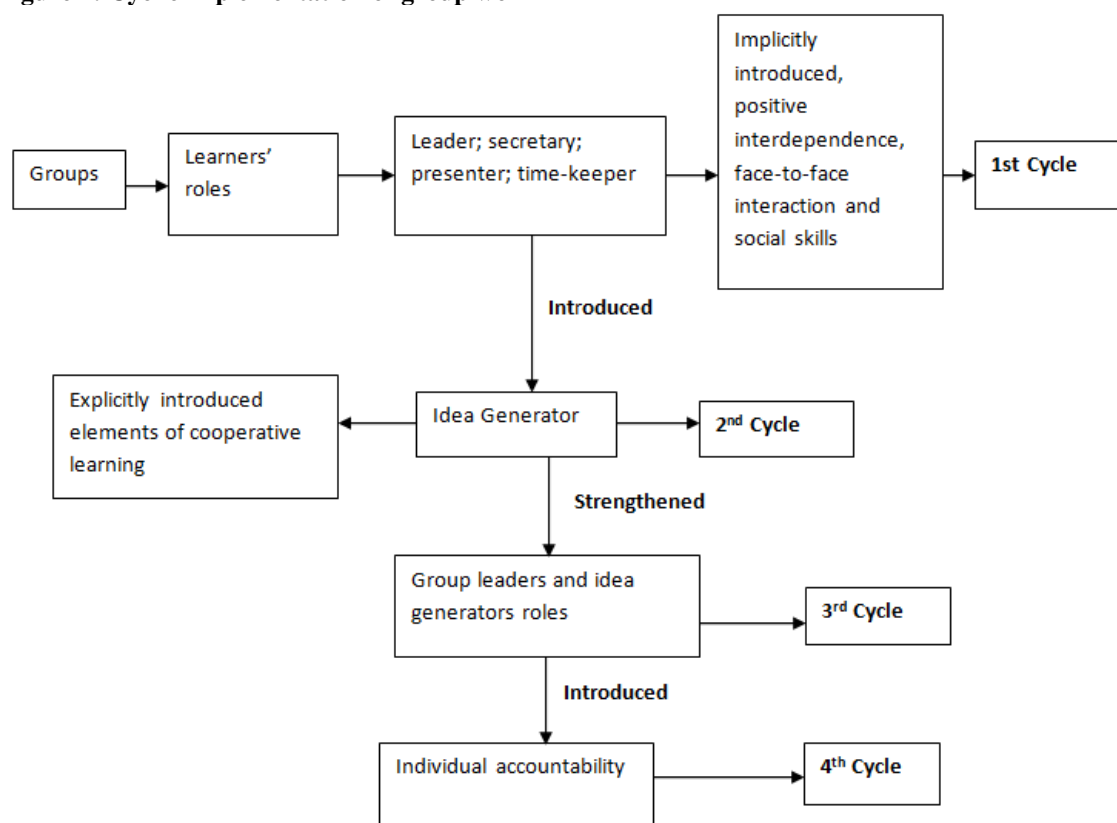
The above improvements on group work resulted to interaction outcomes as illustrated in table 5.

6. Findings

6.1 Findings from classroom observations

The implementation of the two strategies resulted in different learners' interaction engagement outcomes as illustrated below.

Table 4: Pair work Learners' interaction engagement outcomes

Teachers	Cycle 1	Cycle 2	Cycle 3	Cycle 3repeated	Cycle 4
AF	HE	HE	HE	-	HE
AM	ME	HE	LE	LE	LE
BF1	ME	HE	HE	-	HE
BF2	ME	HE	LE	ME	ME

Cumulative pair interaction engagement outcomes: categorized as High Engagement (HE)- 80% or more learners engaged; Mixed engagement (ME) - Any value between 80% and 20% of learners engaged; Low Engagement (LE) 20% and below learners engaged in interaction. This was based on subjective judgment as observed during pair work sessions.

The above table indicates that the creation of interaction opportunities for learners though implementation of improved pair work had mixed results. Whilst AF and BF1 consistently had HE, BF2 and AM oscillated between ME and LE

Table 5: Group work Learners' interaction engagement outcomes

Teachers	Cycle 1	Cycle 2	Cycle 3	Cycle 4
AF	LE	HE	HE	HE
AM	HE	HE	HE	-
BF1	HE	HE	HE	-
BF2	ME	HE	HE	-

Cumulative group work interaction engagement outcomes Learner interaction is based on the number of learners that interacted in focus groups in terms of 80% and above High Engagement (HE); 20% and below-Low engagement (LE) and any in-between value as Mixed Engagement (ME)

The above table indicates that the implementation and improvements on group work resulted in mostly high interaction among learners in all the teacher's classrooms.

6.1.2 Teachers and Learners' Sentiments about the Viability of the Two Strategies

Though all teachers agreed that they experienced challenges in the initial stages of implementing the two strategies, they also concurred that both worked but at different levels - "...it depended on the degree they were able to work (AF). AF perceived pair work as "a stepping stone to group work." She argued,

> ... you cannot introduce group work without starting from pair work. You cannot just make
> students to start working in groups without accepting to work with one another. The advantage
> is that through pair work, a child is now able to work in a group. It is not easy for one to fit in a
> group without passing through pair work.... a child is free to talk to one before he gets the
> confidence of talking to others...

BF2 also revealed that "it [pair work] is not as effective as group work." The effectiveness of group work was experienced in its ease of implementation, enhancement of creation of interaction opportunities for learners and promotion of learning.

BF1 stated that in a large class, coupled with limited lesson time, it was easier to monitor group work activities- "... because the groups are not very many as pairs. But...if you have a class of 70, the pairs will be around 35. But groups will be less than ten or ten." Accordingly, it was easier, to check on group tasks, and control the whole class.

Teachers expressed that group work created more interaction opportunities for learners. AF observed that,

> In groups...pupils were able to interact more as compared to pair work. Because in pair work,
> only two partners could be able to exchange ideas. But when it came to group work, at least
> each and every person was participating and then there was more interaction.

More interaction resulted in more learning and better understanding. More learning was achieved   because ..."when it is pair work you may pair slow learners, but in groups you have mixed abilities...the slow ones can learn from the quick ones" (BF2). Learners also said that they did not only learn more from others, they also "learn what the teacher has not taught" (B-GD2). Additionally, they argued, "it is easy to solve questions with many people, because many people have many minds" (B-GD1), hence, more points are generated. B-GD2 concurred and said, "[Unlike in groups] when you are two you don't give enough points."

Less learning in pair work was linked to other learners' academic abilities and behaviour. A-GD2 stated, "In pairs [if] both of you are stupid, so you will not put a point." Moreover, "in pair work you can be two people that don't know anything..." "But if you are many, there will be a clever person to explain" (A-DG1). According to learners, it may also be difficult to learn in pairs due to assertiveness of partners (A-DG2) who may derail the discussions -"...the other person thinks he knows so much (interjection) so you can get it all wrong and you start arguing and quarrelling." Arguments occur due to lack of compromise- Either, "when you tell someone this is this, he starts refusing and says it is not, and I want it my way" (ibid), or "This one says he wants this answer and this one says she wants this answer (ibid).

Learners seemed to be confident that the foregoing may not occur during group work because they tend to compromise more easily- "In groups, you can find two that know and other doesn't know (interjection).... so those are the ones that will (interjection) yes, help us" (A-DG1). This seemed to mitigate the quarrelling that occurred when paired.

Learners also agreed that pairs do not work very well especially when you are partnered with a disturbing person or your friend-

> In pair work you can have a partner who is very disturbing, and will not listen to you when you
> are reading. He will be making noise, shouting. He knows the teacher will not hear because the
> teacher is not near (B-GD1).

These sentiments reveal that some learners still felt 'lost' to the teacher during pair discussions,

The disadvantage of pairing with a friend was unanimous. A-GD 2 stated, "In pairs when you are seated near your friend, you can't listen to the teacher; you are talking..." This group felt that this situation cannot be remedied by moving them around since "people have many friends in the classroom."

AM also argued that points generated during group discussions are more concrete. AF seemed to qualify this when she stated that,

> When it [task] is brought to groups, and each of the individuals gave a point, I think it covers a
> wider area compared to pair work. So they [learners] get more knowledge, get more points,
> they get more ideas as they interact more.

Group interactions also result to greater retention of concepts- "As they interact [learners], the points stick in their heads than when you lecture and write notes, which they normally don't read" (BF2). The enhanced retention is because "it is them contributing the points ...and when it comes from them, it *really* 'sinks' and they *really* learn from each other" (AM). Moreover, there is a possibility of points being repeated several times as learners discuss for a compromise leading to high retention. Likewise, learners agreed that "those are the points that the teacher writes on the blackboard and we write in our books. So when you read your notes (interjection) you revise, you cannot forget" (AGD2).

6.1.3 Benefits of the two strategies
Teachers experienced certain benefits as they implemented the two strategies.
6.1.3.1 Inclusiveness in the classroom
Teachers agreed that both strategies made classrooms more inclusive. All learners, including the passive/shy and slow ones interacted. BF2 argued that unlike the previous teaching where the teacher tends to move along with fast learners, "But as they [learners] work in groups, even slow ones, try to catch up with the others. They [learners] help each other in learning." AF and BF1gave examples of passive/shy and slow learners participation in the learning process through group interaction. Conclusively BF1 said,

> ...there are those who don't talk...like when I could come and use the lecture method...I would
> go out without half of the class talking at all. But now with these strategies they are able to
> talk. At least every child talked...

These sentiments confirmed her revelation during intervention stage of one learner though always passive was able to contribute to group discussions. AF reiterated the same and said, "But after this [intervention] those ones who were not discussing, those who are slow learners and even average were now able to discuss." She singled out one learner who, apart from being shy, passive, and slow and below average; and also in the initial stages seemed, as observed by the teacher, to resent group work sessions, eventually opened up and interacted.

> ...we have a girl who is not a performer in class. P is shy, that is why she does not share ideas
> with others. But through group work and after encouraging them to speak in Kiswahili, P was
> able to open up and she started giving points.

P was able to interact because a conducive, non-threatening and non-judgmental environment was created both by the teacher and group members.
Creating interaction opportunities through the use of these strategies seemed to empower most learners. AF argued,

> But after this those who were not discussing were those who are slow or even average were
> now able to discuss. It changed their attitude whereby they were thinking that only the higher
> achievers could talk, and now it changed that everybody could talk, anybody could talk;
> everybody could give an idea....

Learners reiterated these sentiments and said that in groups everybody talks (A-DG2). This was also observed during group work sessions (see table 7.2).
6.1.3.2 Learners' attitude towards subject
Teachers noted that learners' attitude towards the subject became more positive. This was indicated by:

> 1.The reception AM got whenever he went for his lesson. The class teacher disclosed to him- "What is
> wrong with that class,... the moment they see you they just welcome you, they are ready to learn..."
> Hence, AM concluded that "they [learners] are so much interested in the subject...they wanted to learn."
> 2.The several teaching requests AF received from the class whenever they did not have a teacher. Apart
> from AF disclosing this during the study, I also observed twice learners   requested her to teach them.
> 3.The excitement (clapping) expressed by BF2 learners whenever I accompanied her to class. They
> would also shout, "Come tomorrow" whenever I was leaving. BF2 confirmed this when she said,
> "According to my assessment, the children enjoyed the lessons, they loved you so much. They wanted
> you to come again and again."

Though there were no observable emotional outbursts in BF1 class, she said that, "...especially cooperative learning, they [learners] enjoyed it more."
The change of learners' attitude could be attributed to their involvement in the classroom process through peer interaction. This was confirmed when learners stated that they were happy and loved "explaining to their friends what they had written, and what they could not understand (A-GD2). B-GD1 summed learners' positive attitude towards the subject when they said, "People became overjoyed and were happy when it was time for social studies."

7.   Discussion of Findings
Though Leighton (2006) argues that pair work enables all learners tointeract, this study revealed otherwise, as the interaction were of mixed outcomes (see table). This could be attributed to the fact that the class still felt big and learners still could get lost and escape the teacher's eye and not engage in interaction.Moreover, other factors contributed to this situation- lack of vigilant and purposeful monitoring, unclear procedural instructions and learners' competency in English language, the language for instruction. Also since this was the first time learners and teachers were engaging in this type of classroom structure, less interaction due to many challenges encountered was bound to occur.

However, the foregoing notwithstanding there was a certain amount of interaction that occurred as evidenced from the eagerness shown by learners to share ideas in the classroom during the elicitation period.

Group work which was modified by incorporating certain elements of cooperative learning (see figure)

seemed to be more viable in terms of enabling most learners to interact because of the grouping structure of mixed abilities which seemed to benefit most learners. This led to more conceptualization of tasks as learners of diverse capacitates and capabilities interacted. As a result, it was believed that more learning took place during group work sessions.

Teachers also believed that group work eased certain large class issues: classroom management, lack of individual attention and learner assessment. They argued that with group work, they were able to keep learners on task, hence less disruptions in the classrooms. Teachers were able to assess learners' work and give feedback as they monitored groups. In addition teachers felt they the y could mark group products since they lessened the marking load as when they marked the individual work.

8.   Conclusion

It is clear that of the two strategies, group work was more perceived to be more viable than pair work. Apart from creating more interaction opportunities for learners, (see table), hence enhanced more learning and retention for learners, teachers expressed that it seemed to ease large class issues of classroom management, assessment and lack of individual attention. Teachers also felt that group work created an inclusive classroom where all learners both, higher and low achievers interacted, as learners seemed to be empowered. Ultimately learners' attitude towards the subject became more positive due to their involvement in the classroom process through interaction.

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