SOCIAL INTERACTION STRATEGIES AND TECHNIQUES FOR TODAY'S CLASSROOMS

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ABSTRACT

An emerging research tool used in recent years to better understand and improve teacher thinking has been the use of collaboration and collaborative action research. In our study, we were interested in whether teachers could enhance the learning of their subjects through the use of teaching techniques and strategies involving social interaction. Both traditional strategies and technology techniques were utilized in one cycle of Collaborative Interactive Group Action Research in an attempt to determine whether increasing social interaction implementations might increase on-task time, engagement, motivation, and ultimately achievement. Three teachers in different classroom environments participated in the study and interacted in a group including two university professors. Results indicated that there were significant advantages to increasing social interaction strategies and techniques as well as some challenges associated with their implementation.

Keywords: Collaboration, Collaborative Interactive Group Action Research.

INTRODUCTION

An emerging research tool used in recent years to better understand and improve teacher thinking has been the use of collaboration and collaborative action research (Saurino, Saurino, & Clemente, 2008; Saurino, Saurino, & Crawford, 2005; Pate, 1997; Elliott, 1990; Noffke & Zeichner, 1987; Carr & Kemmis, 1983). In this study, the authors were interested in whether teachers could enhance the learning of their subjects through the use of teaching techniques and strategies involving social interaction. It is worthy of note that when they refer to action research by any name in this study, the authors are actually referring to a subset of action research called collaborative action research. More specifically, the authors are further referring to a subset of collaborative action research that they will define as collaborative group action research.

The overall concept of *action research*, as illustrated in Figure 1, has its foundation in the work of Kurt Lewin (1947). Lewin is most often cited as the founder of this form of research, which he called *action research*, because he combined interventive actions and group research. Lewin took an existing group, introducing a change or action to it through a group facilitator, and observing the impact of such change or action. Lewin used a cylindrical process involving a recursive, nonlinear pattern of planning, acting, observing, and reflecting on changes in social situations observed by the facilitator. For the purpose of this study, the authors are using Lewin's definition of action research as the basis of our definition of collaborative group action research. Furthermore, when they refer to social interaction, they assign the term to students interacting with each other in the learning process and with the instructors.

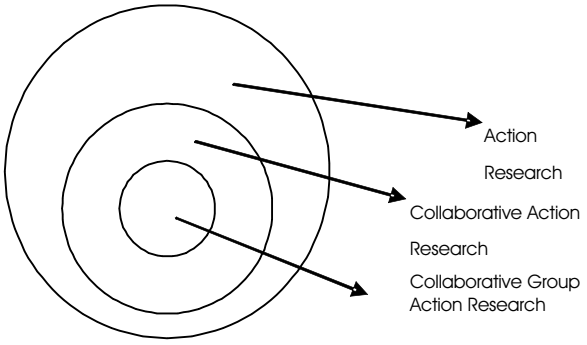

Figure 1. Relationship of collaborative group action research to collaborative action research and action research

In summary, the authors define collaborative group action research for the purpose of this study as a group of in-service teachers actively working together with a university researcher to ask questions of interest, in an attempt to find answers that might help improve their practice in regard to social interaction strategies and techniques. The ultimate beneficiaries of the process are the students, yet the teachers and university researcher also benefit from the new and relevant knowledge gained by experiencing the process. In addition, they see collaborative group action research as a methodology, a process of conducting research using a particular sequence of research strategies and theoretical perspectives across the curriculum (Beane, 1993; Gatewood, 1998; Oberg, 1986; Saurino, Saurino, & Clemente, 2008; Saurino, Saurino, & Crawford, 2005; Saurino, 1998; Saurino & Saurino, 1996). The varieties of collaborative action research are as numerous as the potential topics that can be addressed. However, collaborative action research is generally qualitative in nature, aimed at developing new insights into schooling, education, teaching, learning, and/or finding new approaches to solving problems in education, industry, community development, and the military (Noffke, 1995). This type of research also involves reflection, which provides the researcher an avenue to better understand what was learned from the research process and to better understand the implications of the findings. The research continues by repeating the process again, and begins with either a completely new question or a refinement of the initial question based on what was learned during the first research sequence. Therefore, collaborative action research can be an ongoing recursive sequence; each completed series of research steps often referred to as a *cycle* of research. The term *cycle* is a little misleading, however, since the research never begins at the same point as the term *cycle* implies.

The Cycle of Collaborative Group Action Research

The research group in this study consisted of three in-service teachers, all graduate students, and a university collaborator. Meetings with various members of the group were scheduled regularly throughout the study, and an informal atmosphere was maintained. The group meetings provided a place where plans were made, questions were asked and answered, problems were discussed, and reflections were expressed. The group setting also provided an avenue to brainstorm for new ideas, strategies, and techniques used to initiate actions, direct the research, solve problems, and ultimately answer the research question (Saurino & Steele, 2008).

The research process completed by this study involved four chronological phases and a planning phase for future cycles. The four chronological phases were based on the recursive collaborative group action research cycle outlined below and illustrated in Figure 2 and Figure 3.

Phase 1: Planning Phase

Phase 1 (Planning Phase in Figure 2) began in August with an initial meeting of the in-service teachers and the university researcher. The in-service/graduate students had volunteered to do the research after being contacted by the university researcher, but did not know any particulars about the process of conducting this type of research. The general plan of creating research questions, taking actions, collecting data, and reflecting was discussed and a basic time line for the cycle of research was established. The teachers had a variety of

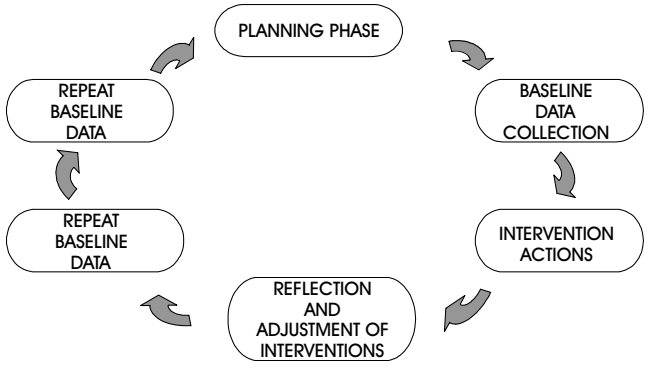

Figure 2. Illustration of one recursive sequence of collaborative group action research, often referred to as a "cycle."

Phase 1: August	Planning phase of the project and Cycle 1
Phase 2: September	Baseline data collection for Cycle 1
Phase 3: September-December	Intervention strategies/Modification of interventions
Phase 4: December	Repeat baseline data/Reflection for Cycle1
Phase 5: January	Return to Planning phase for future cycles

Figure 3. Phases of the Collaborative Interactive Group Action Research Cycle.

questions and concerns that were expressed and discussed. Their most arduous concern dealt with the amount of time required to complete the research project. The university researcher emphasized the fact that the process was flexible and the time line could be adjusted. During the project, field notes were created from observations and interviews with administrators, parents, students, and other teachers. In addition, everyone in the group kept a personal running journal of reflections, notes, and strategies and techniques utilized during the study. These data were the source for this written report. The in-service teachers returned to work in August. At that point the group finalized the research question for the cycle. The finalized research question is as follows:

What strategies and techniques using social interaction might they utilize to enhance the learning of our students?

It was convenient to have one research question that all the teachers could concentrate on and reflect about, but the process of the cycle could have included different questions from each teacher if necessary. The next phase, baseline data collection follows.

Phase 2: Baseline Data

Phase 2 (Baseline Data Collection in Figure 1) began with what we refer to as *baseline data*. Baseline data answer the question, "What is the current situation in regard to our research question?" The classrooms for this study were located in a suburban area less than an hour west of a large mid-Atlantic metropolitan city. Each of the three teachers described the current situation in relation to using Social Interaction (SI) techniques in their classroom as follows:

Teacher 1: I am the special education teacher in a collaborative eleventh-grade earth science classroom. I often refer to the other co-teacher throughout my record keeping, thus the reference to "we" instead of "me." Our classroom styles already advocate and utilize several social interactive models. The authors utilize individual work sparingly. In a laboratory science class, there are opportunities for students to interact socially because all labs are done with partners or in groups.

Students completed study guides in pairs. A large majority of students completed the study guides but there were a percentage of students who did not answer the short-answer questions or the essay. The authors watched a video on the basic sciences involved in earth science and on some basics about the earth and its structures, everyone worked independently to answer questions while the video played. Students also completed a map-skills packet together. They worked in pairs to solve questions about the map and manipulated several items like globe, topographic maps, 3-D bar graph, etc. When asked what they thought about the Si techniques typical responses included: "One thing I like about this class is all my friends are in here and we get to work together," and "I like doing labs. It beats doing bookwork."

Teacher 2: I teach three block classes, all ninth grade students, including one regular ninth grade literature / composition and two basic reading/writing courses. Before school started two weeks ago, I removed the single chair and desk combinations and brought in five roundtables that comfortably seat up to six students each. My lit/comp class has 27 students; the other two classes are comprised of 12 students and 18 students.

Behavior issues

Being students who are in ninth grade and students who are taking basic reading/writing, behavior and classroom management is a predominant issue. Add to that the roundtables, and we have a situation where students think that my room is an extension of the cafeteria.

Beginning inclination

Students who are new to high school have enough concerns without my adding to their dismay. So, I allow students to sit where they please, and of course, they sit with friends. Thus begins the training of students to stay on task and not turn their attentions to personal grooming, eating, or discussing the soulmate of the day. In my classes, I do as much group work as the content and my creativity allows. If students are not on task, however, even though they appear to be actively involved in group work, they will not be engaged and little learning occurs.

Students will be sorted out, mixed up, moved around, and some removed as part of the "training" into social interaction studies.

Beleaguered involvement

I have been asking students about how they felt and thought about the group work. I believe that even though students are not initially motivated to cooperative learning, the fact that they are socially engaged can be manipulated toward a true content-related experience. Of course they all love it because they are with friends. Comments have ranged from "I can get my work done faster," to "when I don't know something, someone else knows the answer."

Teacher 3: I teach a collaborative (two teachers, one is special education) ninth-grade biology class and we like to try as many hands-on activities with the students as possible. The authors want to use pairing regularly and let students pick their partners. They hope to use pairing so students can check their answers and work with each other, for think-pair-share, for small projects such as picking a biome and drawing its abiotic and biotic factors in labs. So far this year, the researchers have only used pairs for labs, but this can also be done in multiples (i.e. two pairs as a group of four). They use multiples of three only if we have an odd number of students where strict pairing will not work. Another SI strategy they like to use is question/answer sessions. They pose a question to the class and the students answer freely. Also, they use that strategy for review games modeled after TV game shows for vocabulary practice.

I chose five students that I used for interviews, consisted of two high level students, one average level, and two lower level students. I interviewed the five students initially and asked them the following questions:

- How do you like socially interacting with your classmates during class time?
- How do you like working in pairs?
- How do you think working in pairs helps you learn or understand the material better?
- Do you like to pick your pairs or do you like the teacher picking the pairs for you?
- Have you any suggestions on working in pairs?

Responses

- All 5 students like socially interacting with their classmates.
- All five students said "Yes" to liking to work in pairs.
- One student responded, "Yeah, it does because I have someone to help me figure out what we are supposed to be doing when I don't get it." Another response was, "Yes, I understand it better when I have help from a friend." A third response was, "I like to work in pairs. I have a person to ask questions to and it's more fun." Two students responded with just, "Yes it helps me understand the material better."
- Four of the five students prefer choosing their own partners or pairs. One student responded with, "I like it when the teacher does it so no one feels left out."
- One student said, "It would be better if the researchers were given more time to talk with our friends instead of being paired up just to do an assignment." Two students shook their shoulders and had no response. The fourth student's response was, "We should be able to work with the same partner all semester and not have to change." The fifth student said, "It's more fun."

Phase 3: Interventions and Adjustments

Interventive actions included the actions we took to answer our question, reflections about our actions, and adjustments of our interventions. The actions comprised the vast majority of time spent on the project. The authors would initiate an action like adding pairing techniques to our teaching and then meet to discuss what was working, not working, what they might adjust to make it better, and then continue the actions until the next meeting. When they were satisfied with the current action, they would add the next action. The chronological implementation of actions and our reflections follows.

First Actions, Grouping in Pairs

The first action that was implemented was group pairing of students in activities that would initiate thoughtful responses from students after thinking and discussing topics in groups of two. Each of the three teachers

involved in the study focused on learning activities suited to students working in pairs. Modifications in strategies were implemented by each of the teachers as necessary. Teacher reflections and some student responses were written and categorized as follows:

Teacher 1- Initial Grouping in Pairs

Teacher 1: In the first week of interventive actions, the students were in lab classes. Although I normally do lab work in small groups of four, I decided to conduct the labs with pairs. Typically, I do labs in groups of four which minimizes the amount of materials. For this lab, I also grouped students completely at random rather than my normal practice of assigned groups. I put all students' names on pieces of paper dropped into a cup. Each student then drew out of the cup the name of their partner for the lab session. Most times, I let students choose with whom they would like to participate, and I could tell that this process in the past hurt the feelings of some of the students who would not get picked or alienated. Pulling names out of the cup objectified the partner process. I initially observed that I was redirecting more than usual and assisting students as much as I did with groups of four. Groups of two doubled the number of the lab groups that I had to deal with and increased my classroom management issues.

After the lab activities with groupings in pairs, I asked my five selected students orally a series of open-ended questions about the pairing selection process and what they thought of it. I recorded their answers. Some of the student responses included:

Student 1: "No, I like picking my own partner".

Student 2: "Not really, because my partner didn't do anything".

Student 3: "No one gets left out and everyone isn't fighting over the smart people".

Student 4: "As long as I don't get stuck doing all the work, I will work with anyone".

Student 5: "However you want us to do it is fine. You probably have your reasons for doing it this way".

Student responses varied about the process of choosing partners. My attempt to be fair in the grouping of pairs had mixed responses from students. Some liked the pairing and how it was accomplished while others did not. Some of the students saw themselves as having to do most of the work in group situations. Some students saw the fairness aspect of random pairing and realized that student feelings about being left out were considered with the drawing of the names from the cup. Those students who groaned about their selected partners did not work well together with their partners during the lab experiment project.

I also have paired students for various activities according to abilities and activities. One in particular was well-accepted by the students because of the use of computers in some research on current events. There were some definite differences in pairing students by abilities. I noticed more frustration in the students perhaps due to more competitive attitudes, and I also noticed less cooperation between group members as they bantered with a your-half/my-half approach to their activities. Some of the student responses included:

Student 1: "I like computers, but [. . .] I felt like I surfed and surfed and got frustrated when I couldn't find things."

Student 2: "I don't like computers. I was glad someone worked with me."

Student 3: "I like it."

Teacher 2 - Initial Grouping in Pairs

Teacher 2: Logistically, grouping in pairs was more than a slight challenge with five to six students seated at each of the five or six tables. The problem was easily remedied by shifting student seating around each table. I observed that most of the students had never been exposed to regular group work and worked in pairs, and some only occasionally. Furthermore, I had no idea if the students' experiences with grouping were authentic or merely students copying students. For the interventive actions, students were placed into pairs for three separate assignments on corresponding days. The three paired assignments were as follows:

- After a shared session on the elements of short stories, student pairs were to find examples of the elements in the stories read.

- Focused on a particular story read, student pairs answered in written responses nine open-ended questions about the story.
- Students were asked to share with their partners their answers to four writing prompts from the week regarding learning and learning styles incorporated in the study of fiction.

At the end of the week, I asked all students in all classes for verbal feedback as to how they felt about the week, particularly regarding the pairing activities. Most students were eager to speak up about how well they liked working with their partners, whom they were allowed to pick on their own. I asked his inner circle students to be more specific in their replies. Two of them reiterated what other students had said about working with their friends they felt they could more easily engage with the materials and converse with one another regarding the assignments. One student said she felt they did not have to spend a lot of time on the material and that they seemed to grasp it more quickly working in pairs. One male student said he thought the room was quieter, and the other asked if the class could do all of student work in pairs.

I also experienced something I had not planned on happening. What I found most interesting was the students' responses to my questions as to how they felt about how they were learning. It is as though they felt their opinions mattered. Although grouping in pairs was a new strategy to most of the students, the questioning afterwards impressed the inner circle students just as much if not more. Also, during the pairing sessions, the room was noticeably quieter, and students who normally were difficult to keep on task were on task and engaged in the activities. I still had to maintain security patrol and proximity control, and I found that I could actually help some students rather than just trying to keep other students on task with the assignments. Instructional time was increased because classroom management issues were minimized.

Teacher 3 - Initial Grouping in Pairs

Teacher 3 : I used pairing as a vocabulary review for the test the following day. Students chose partners of their choice. My classes played a vocabulary game, based on TV game shows, where one student gives the definition of the word (the giver) and the other student must guess the vocabulary word (the guesser). After the game, students then use their vocabulary flash cards to quiz each other on the words and definitions. The students had fun playing the games and were laughing and being creative in their thoughts while working in pairs on vocabulary. I like the idea of using pairing for vocabulary because it is more interactive and a more fun way of getting/helping the students to learn it. It keeps us teachers from having to make and copy worksheet after worksheet of vocabulary for them to review. Students these days are more visual and kinesthetic. Hands on activities and group/pair work are more meaningful to the ways in which they learn.

The students all liked the game activities using vocabulary content. Two of the students mentioned that it was difficult to be the clue giver in the game because, "I had to know all the definitions to the words so my partner could guess and I didn't know them all." The game I used can be difficult for some of the students because it involves having to know the definition and/or vocabulary words to use or guess at their meanings and definitions.

Second Actions, Grouping in Three to Four

The second action that the researchers implemented was organizing students in small groups of three to four students each. They hoped that the dynamics of pairs grouping would carry over into the slightly larger groups and those students would engage with each other with thoughtful responses after thinking and discussing their topics or activities. Each of the three teachers involved in the study focused on learning activities suited to students working in small groups of three or four. Modifications in the strategies were implemented by each of the teachers as necessary. Teacher reflections and some student responses were written and categorized as follows:

Teacher 1 - Initial Grouping in Small Groups of Three or Four

Teacher 1 : This week we worked in groups of four to complete a *Going Green* project. I divided students according to academic ability, one high, one low, and

two medium. There are four parts to the project: a written portion, an oral presentation, a visual portion, and a community initiative. Students were pre-selected into their roles within the groups based on their strengths and weaknesses. For example there were students who I knew were talented artists, so they were assigned the visual portion of the project. Students worked together for three days in the library, computer lab, and classroom. On Friday students presented their projects to the class. Some students who did not attend class everyday and students who played instead of doing what was required presented negative aspects of the project and small group work. Some of the comments by students in response to verbal questions about the project and working in small groups are as follows:

Student 1: "I like how we were all responsible for our own part. Most of the time I do the work for the entire group in group projects."

Student 2:"It was good. Everyone did what they were supposed to, but our oral was weak."

Student 3: "I never had four people in my group. On the first day and the third day, I had three people. On the second day, I had only two."

Student 4: "I liked my group. I liked that we were assigned duties because that way we didn't all fight over the same part."

Student 5: "My group was good this time."

Teacher 2 - Initial Grouping in Small Groups of Three or Four

Teacher 2: The arrangement of small groups of three or four proved to be the most challenging for me in the room of five round tables and a class of near thirty students. I brought in a sixth table to see if we could arrange the groups a little better; six tables was over-crowded and some students tended to group into five or six rather than four I let it go the first day. The next day, I went back to five tables and set up two sides to each table in small groups of 3 or 4 this arrangement actually seemed to work to accommodate the smaller groups of three or four. We continued with small group activities for the next few days, a total of three times for the week. I found it difficult breaking students up into level distinctions and separating them by academic ability. Some of those nuances seemed to work themselves out.

For the small groups of three or four, the researchers focused on writing, literary terms, and reading in the assigned novel. I introduced the main concept of literature circles to see if the authors could try some techniques inherent in the strategy. The literature circles aspect of group activity work better with larger groups of five or six at each table probably some kind of task directive would be included such as a study guide or guides to help students in the various aspects in literature circles. Students worked in the small groups to produce a completed study guide of writing samples, examples of the literary terms, and a brief reading log. They also read to each other and dispersed around the room by groups. Natural separation according to completed tasks began to take place as students moved into different groups to work with others who were on the same projects. I decided to allow the natural self-selection process to determine the groupings.

When questioned, most of the students liked the small groups of three or four better than the pair groupings. From my perspective, I observed students on task, but the noise levels were definitely higher in the room making it difficult for some students to concentrate (if that is what they were doing). It appeared that those students who were making the most noise complained the most about the level of noise. I normally do not give tests on Friday, but I made an exception because I was interested in their remembering the terms. Students retook the literary terms test, but this time, I just listed all twenty-two words and told them to pick out eighteen of their choice and write all they could remember on how to use the term or how they were used in literature. Students did tremendously better on the test. I do not know if it was because of the grouping or the change in the test, but their scores were significantly higher; their grades will replace the test grades from the previous week.

Teacher 3 - Initial Grouping in Small Groups of Three or Four

Teacher 3: I had been implementing groups of three, which was much more difficult because of the

unevenness in the numbers caused uneven groups. The project for the group session was a science lab, and the groups of three were well-suited to the activity. The researchers created cell models of animal and plant cells. Because this was the first time they used groups of three rather than pairs, I let the students choose their own group members. The behavior of the students was not a problem with these groups of three, but the students were more talkative in the process of getting their work done.

The students I spoke to after the groups of three sessions liked this grouping. One student liked the grouping of three better than pairs because he "got to work with more of his friends, not just one." One of my students liked the aspect that there were more people to help out in the building of the model, and each person was responsible for labeling and building a certain number of the organelles. Another student reported that groups were easier "because [he] didn't have as much work to do like in other labs." He continued to state that the more people in a group, the less for each member to do, which took the "weight off him."

After the researchers worked in groups of three, I then chose to have activities with groups of four. I decided to use groups of four to work on vocabulary review. I put the students in groups comprised of two higher level students and two lower level students. I based these groupings on averages of the students' past vocabulary test scores. I put two of the higher scoring students in a group with two of the lower scoring students. They reviewed vocabulary using note cards that the students had previously prepared.

Each group member had a role of participation in the group. The roles are leader, time keeper, recorder, and score keeper. The leader was responsible for getting the materials, the time keeper kept time for each segment of the activity, the recorder recorded the answers onto a sheet of paper that would be turned in, and the score keeper kept up with how many words the students defined within a certain timeframe. The students were given the words on note cards and the students had to give the definition of the word chosen on the card. The students said that they liked this form of reviewing for vocabulary.

When asked about their groups, the five students I interviewed liked the way I grouped them. They liked this way of reviewing because it "got them out of their seats" and the students "got to have a role/responsibility." One of my lower students mentioned that she did not know the definition of the word, but that a group member helped her to remember it (one of the higher level students).

Overall, the vocabulary scores were better on the test students took at the end of the week. One of the lower level students I interviewed still did not pass his vocabulary test, but his score improved on the test. I will continue to use this grouping of four students for more vocabulary review.

Third Actions, Grouping in Large Groups and Other Social Interactions

The third action that the researchers implemented was organizing students in large groups of more than four students each including a group of the entire class. They hoped that the dynamics of other groupings would carry over into the larger groups. Each of the three teachers involved in the study focused on learning activities suited to students working in larger groups for these actions. Modifications in strategies were implemented by each of the teachers based on our reflections and discussions. Teacher reflections and some student responses were categorized as follows:

Teacher 1 - Initial Grouping in Large Groups and Other Social Interactions

Teacher 1: I instructed my class on a *Going Green* project where students researched ways to change dependency on fossil fuels and started to make more efforts to conserve the Earth's resources. After continued questions and updates from my students, I decided to conduct a current event activity using global warming as topic and large group class discussion. I pulled an article from the Internet and made copies for the students. The researchers read the article silently as a class. Afterwards, students sat in a large circle comprised of the entire class. They had a stuffed animal, a bear, which worked as the token for being able to speak. Students would speak only when they held the bear. When passed, the bear would

be the token for another to speak and so on. I was impressed with the comments that I heard and some of the banter back and forth was full of valid points. The class discussion was productive and most students seemed to be involved in the discussions.

On another social interaction project, our focus was on dichotomous keys. Dichotomous key questions always exist on the biology End of Course Test, and they are often seen on the High School Graduation Test as well. In Earth Science, I wanted to take the opportunity to often review for these tests since my students will take the tests to pass the course and graduate. The lesson began with the class working as a whole group as they are reinstructed about classification, characteristics unique and shared between organisms, and how to read dichotomous keys. Students then took a trip outside to collect leaves found on the ground. Students then worked in groups of four and collected five leaves for each group. Students had to work together making sure they did not have duplicated leaves. I made sure that the students covered a large enough area around the campus to constitute an official field trip. Upon returning, students worked in groups of four to create their own dichotomous key. In order to test validity, I stopped by every group, picked up a leaf to see if I could utilize the dichotomous key for identification of the chosen leaf. The lesson concluded with students completing an individual study guide containing standardized questions using a dichotomous key.

Student responses to the large group activity and inquiry about how the class studied and learned the dichotomous key were as follows:

Student 1: "I liked it. I am glad we got to go outside."

Student 2: "We worked together just fine. Everyone spoke in our group and we all seemed to agree on how to make the key."

Student 3: "The weather is so nice right now. Going outside was a good idea and it was a good way to review for the graduation test."

Student 4: "I wish we would have stayed outside for the whole class."

Student 5: "I was glad I had people to help me do this because I probably would not have completed it without them. I really enjoyed going outside as a way to review for the end of course test.

Teacher 2 - Initial Grouping in Large Groups and Other Social Interactions

Teacher 2: I wanted to conduct a large group all-class discussion and did not want the tables to be prohibitive to student participation. I folded up the tables and put them against the wall and had the students put all the chairs into a giant circle. Then, I brought out a stuffed bird toy the discussion moderator. I wanted the students to discuss the characterization aspects of the novel. In talking about the characters as real people, other things such as imagery, theme, and plot would naturally come into the discussion. Rules of the circle: whoever has the bird can speak, throw the bird to the next one to speak, raise hands to ask questions of whoever is holding the bird, and do not destroy the bird. I had planned on approximately twenty minutes of discussion and most likely my intervention I was pleasantly wrong. Students carried this strategy for almost an hour, and they did not tire of it. The timing in the novel study was right, the students felt empowered to say what they wanted, and I just sat down as a member of the circle. Some students reverted to merely spouting out facts about characters, but other students would merely say, "Why?" The researchers had much discussion about backing up what one thinks about literature or why someone would think or say a thing it is almost becoming second nature to most students in my classes now to ask why or continue the questioning with other questions. With about half an hour left in the period, the researchers brought the tables back and set up working stations for make-up work, book reports, the current novel panel project, and readers who had completed other work, outside the back door to read. Yes, the classroom management aspect appeared to be a nightmare at first, but I began to realize that students were actually working on their projects, and they were helping each other. Some students moved from station to station. A couple of them came to me to ask if they could go outside to read. I do not rightly know what to call what we did, but it was terrific, noisy, and gratifying.

General comments from students were positive and forthcoming without request. I asked my inside students for verbal responses to open-ended questions such as, "What did you think of how we reviewed characterization in the novel?" "What would you do differently if you could?" "What was different about your interests today when working in the large circle?" "What did you like and dislike about the group table work stations?"

Some of the student responses follow:

Student 1: "We were reviewing, cool I thought we were playing a game!"

Student 2: "Most everybody seemed to like what we were doing and were listening to each other."

Student 3: "There wasn't as much talking about other stuff, you know, interrupting and blabbing."

Student 4: "I didn't think we knew as much as we did. You didn't have to tell us about the characters. Could we do this everyday?"

Student 5: "The work stations were great; we could do whatever we want, well, you know what I mean. Most of us were doing something I liked it because I got caught up on my missed work."

Students had projects due and some work that was not conducive to grouping, but I had no choice tables that seat six are in the room. I decided not to give a unit test on the novel but to organize a panel project whereby students would create information on various aspects of the novel to attach to a large file folder four panels, four groupings of information as to characters, theme, background, plot, etc. Also, students were finishing book report forms from independent reading over the last few weeks. In addition to these assignments, the researchers had End of Course Test practice sessions and small writing projects. So, they had a mix of social interaction work and independent work. Students, however, were so accustomed to the tables and group work by this time they acclimated well to the increased work load. One student even said, "Hey teach, this is just multi-tasking, we can handle it."

Based on the setting described above, I decided to let the project at hand be the guide. I labeled the tables with different activities the students had to finish. Two tables were designated with the novel panel project, one table was for book reports, one table was for writing, and the last tables I labeled for make-up work for those who were a little behind in their assignments. I also allowed students who were done with most of their work to read independently. I also spoke to some students who had completed all their assignments to help other students, and for this help, I offered some extra credit points.

The side benefit for me on this arrangement was that I could very quickly see which students were working on what projects or assignments. The panel project people were sharing ideas, materials, drawing and writing for each other, and researching information what a concept. Students were floating over to other tables as well. Materials or handouts were placed on those tables. For instance, the book report forms were on the third table and students found theirs, added to it, and returned it to the small box. Six students were outside reading okay, I heard some talking as well, but they were basically reading. Being the end of the marking period and mid-term, I decided to run this setup right through two days to allow students to finish all work. On the last day, some of the tables to the novel project and book reports while I did student conferencing to discuss their progress reports soon to be distributed. The difference on this arrangement was the specificity of the work and projects per table.

Students were asked to respond to the open-ended question, "What did you like and/or dislike about the table arrangements over the last few days?"

Student 1: "I felt we were really learning when we worked together on our panels, and we could talk together"

Student 2: "It was all right, but it is still kind of loud. But, you let us go outside to readthat was cool."

Student 3: "I wish we could do things like this in my other classes, especially math."

Student 4: "Well, I like the group stuff; this is my favorite class."

Student 5: "Great! Someone else helped me with my picture cover and I helped with someone else's writing."

Tables had been set up to accommodate the projects

rather than setting students into groups. I noticed some interesting things with the arrangements. The disruptions seldom occurred, and the room was generally calmer. The pressure was on to get the projects done and grades in. Students were concerned about finishing their work, so they were connected and engaged. Their behavior was more appropriate to a learning atmosphere. My observations seemed to indicate some kind of polarization as to performance by the students. The average and better students excelled even more, and those who were having difficulty were getting help from other students. At the other end of the spectrum, students who seldom do their work continued in their negligence to their projects and assignments, but they are a distinct minority.

Some of the responses to a general open-ended question of how they liked the last week of the term I received are below:

Student 1: "Well, it certainly is not as loud as it can be sometimes."

Student 2: "I really like this set-up; I'm getting more work done this way."

Student 3: "I like this because we can talk to our friends while we work."

Student 4: "Why can't we listen to our ipods when we are in groups like this?"

Student 5: "I would get my work done anyway, but this is really great to be able to work like this. I feel like I am learning a lot more than sitting by myself at a desk ready to go to sleep."

Teacher 3 - Initial Grouping in Large Groups and Other Social Interactions

Teacher 3: I had been teaching a unit on viruses, using AIDS as the example from the textbook. I decided that we would have a large group class discussion about the topic, realizing that it might be controversial. We discussed the lytic cycle (active cycle) of viruses and the lysogenic cycle (dormant cycle) of viruses. Once we got into the notes and class discussion, the students wanted to know a lot of information about AIDS. They were interested in the disease, so we had a forty-five minute current event session in which my co-teacher and I provided the articles for the students to read. Then, we discussed the two articles I had copied for them. Even though the topic was controversial, the discussion was vibrant and authentic; most of the students were involved on more than a casual level. After the class discussion, I decided that we would work in groups to do lab work.

The researchers spent four days on a computer-based research project, and the students were in groups of four. The students picked their own group members, but I assigned the roles to the students. One student had to draw and label the Mitosis cycle, one student had to draw and label the Meiosis cycle, one student had to draw and label the plant cell, and one student had to draw and label the animal cell. The students used their drawings to create a cell guide booklet that was graded with a rubric. We worked on this project thirty minutes a day for four days.

I asked the students in general how they liked the project and how we accomplished the assignment, and some of their responses are as follows:

Student 1: "I really liked it because we got to use the laptops."

Student 2: "I thought it was cool. We got to use the computer and it gave us the answers."

Student 3: "I liked that we did not have to a lot of writing or answering questions for this project."

Student 4: "This one was the easiest [project] by far. We got to draw and I got a better grade."

Student 5: "I liked it. Can we do something like this again?"

Phase 4: Repeating Baseline Data and Reflections

Phase four began in December when the teachers had concluded all prioritized actions. We had other actions that we could have added, but felt that we had enough experience and data to answer our research question. We repeated the baseline data collections just like at the beginning of the study and summarized that data. What follow are reflections about what we learned as a result of comparing and contrasting the first and last baseline data sets with reflections about the process of the entire cycle of research.

Teacher 1 - Repeat of Baseline Data and Reflections

Teacher 1: My experiences using social interactive theories have been quite successful. I am looking for more ways to incorporate social interaction in my classroom. I have been pleased with the academic performance of my students as well as their classroom behaviors. I do not wish to draw a picture of a classroom that is perfect, always on task, and getting along in perfect harmony. That is not the case. However, when social interactive theories work, it can be that picture of perfect harmony. I have been so excited when administrators have come by to observe and my social interactive strategies have really impressed them. They are shocked to see the students who are engaged, interested, and helping one another while the teacher is able to facilitate. Students are more responsible for their own learning, as well as the learning of others. Students also report that they enjoy class more. So this seems like a win-win situation for all involved. The students like the strategies, the teacher likes the method, and it impresses administration as well. However, I would make sure that teachers new to these strategies understand that they cannot give up when things do not go well or as planned. I have always enjoyed social interactive strategies in teaching, but I know that several of my colleagues prefer their quiet classrooms where each student is responsible for his or her own work. I often try to convince teachers like this that they should try social interactive strategies sometimes. I typically tell them that they must at least try it four times before they can call it quits. Social interactive teaching strategies allow students to be social, so I avoid that behavioral battle. SI strategies also allow the teacher to become more of a facilitator and students are allowed teach themselves and rely on one another for assistance. Learning how to work together and figuring things out on their own are also important skills that students need for life after graduation. It is clear that I advocate the social interactive teaching strategies as well as encourage other teachers to implement them as well using a structured approach like CIGAR to examine their own teaching or to try new approaches in their teaching.

Teacher 2 - Repeat of Baseline Data and Reflections

Teacher 2: After a few weeks of working with small groups and pairs (and having to incorporate individual work into a group setting), students are much more aware now of the strategies and tactics being implemented. They seem to be more anticipatory of what it is we might be doing. Their talkative behavior is more controllable, but they are still prone to break out into mass socialization if they are not kept on task with the assignments. I have noticed that a safeguard is to be prepared with other activities or assignments if certain students finish ahead of others. Much less time now is being spent on explaining the strategy or how/why we will be working a project in group strategies. The students now understand without the long explanations how the assignments will be conducted. Perhaps the greatest changes have occurred in me. I now have a greater appreciation for group strategies (which is much more than just working together on all assignments). Activities and assignments now are designed to align with standards rather than a good idea I had on the way into school. I am thinking more of outcomes and what I want to see accomplished first, then the group activities in mind will determine the best strategies. The CIGAR cycle of research opened my thinking and new actions related to improving as a teacher, and I recommend it for any teacher as one form of professional development.

Teacher 3 - Repeat of Baseline Data and Reflections

Teacher 3: Even though the research is complete, I still continue to use the social interaction strategies in my everyday teaching, although somewhat modified. For the research, groups of four were a strategy we used with our students for labs. Since the research, we continue to use this strategy whether we do labs or not. I do not use it as often as other strategies due to the amount of socializing the students do in these groups. I continue to choose the members of the groups due to the academic levels of the students and due to work completion.

Socratic Seminar, another social interaction strategy, is still used in my classroom. I use it as a review for unit tests. This strategy worked better than I had expected during the research, therefore I continue to use it. I do modify the strategy though due to the different academic levels of

the students in my collaborative classroom. I give all the students note cards with a speaking prompt on them, like a question to ask or an answer to give while the students are having their open discussions. The strategy has raised unit test scores for the class as a whole. The model has been used as an extra review session, which has positive effects on unit test scores.

Chalk talk has since been a favorite of my class. The students enjoy coming to the board and brainstorming their ideas. I kept the strategy in place and I continue to use it as a preview to the new units. I like to use it to see what my students know from previously learned material.

I have seen differences in my class working with the social interaction strategies. The students socially interact with one another more and have gotten to know each other in the classroom setting. Before the research was implemented, students in my classroom wanted to work only with the friends they knew best. Now students know one another better and know of each others' work ethic and making them want to work with other students in the classroom. Using SI strategies changed the attitude of the class and I now know which students work well together and which do not. The process changed the way I group students and changed the way I present the subject material. The research process and social interaction strategies have helped students interact, and has improved their grades, work ethic, productivity, and social interests. I really learned a lot about my teaching and their learning.

Conclusions

Teacher 1 Conclusions

Teacher 1: My first experience with conducting research was actually painless. I was excited to try different social interactive teaching methods because I know students are going to be social, and I did not quite know how to deal with that aspect of student life. Since students enjoy being social and positive attitudes are always welcomed in any classroom, I figured that I should just learn how to teach my classes using social interactive teaching strategies. The GIGAR method was great because it allows each teacher to read the work of the other teachers' experiences with their classroom's social interactions. I enjoyed the ability to bounce my ideas and data off of other professionals utilizing the same methods in their classrooms. Methods of collecting better data were also helpful. I enjoyed collaborating with professionals, and I believe it is a great way to research a topic. We are able to learn from one another's experiences. I also enjoyed implementing these different social interactive learning methods in my class and have a strong desire to try more different types of learning methods in my classroom in the future. I would seriously consider doing research again if offered to me.

Teacher 2 Conclusions

Teacher 2: Although I have been involved in and with social interaction classes for quite some time, I am always amazed but never surprised. I am amazed at what students are capable of accomplishing when and if they are connected to the subject, teacher, and each other. Equally, I am never surprised at those times of ineptness, apathy, neglect, or misbehavior. It is true that socially interactive classrooms are more difficult and tedious to keep on task; however, rewards loom large if we can get past those things that would deter learning and connectedness. I especially enjoyed the CIGAR approach because of the reflective capabilities and collaborations with other professionals going through the same things as I am. I believe social interaction is part of the answer to questions about some things lacking in education. Nothing happens without connection to others. It seems apparent that putting students together on projects would help them connect to each other and to the subject. Students have voice and the teacher gives voice to the subject both good things. When students connect with their own reading and writing and share, listen to, review, speak, or socially interact about what and how they are learning, they are really making meaning from what they create or what they see others have created. Reading is not merely decoding and deciphering letters and lines; it is making meaning, and students can do that better working with each other. Writing is not throwing letters and lines on a page it is creating text for oneself or others. When students write,

they are becoming part of the national discussion of literature and its legacy. They are demonstrating connections to the human condition and life itself. I am, consequently, on a directive path to greater meaning-making with my students as we work together.

Teacher 3 Conclusions

Teacher 3: I enjoyed working with and using the CIGAR method. I have never worked with it before and action research is definitely my preference. Action research was the method of choice in working with my collaborative 9th grade biology class. The students were actively engaged in their own learning and they were exposed to strategies in which they had never been involved. I enjoyed seeing them enjoy their working together in groups and getting involved in the subject. In speaking with the students, I got a sense that they felt they were part of a whole, and not working by themselves. They mentioned that if they did not know an answer to a question, their group members provided the support to help them out. I think this strategy helped the students in my class by helping them develop their social skills to work together better.

I think the CIGAR method has changed the way I teach. I now have new collaborative strategies to use with my classroom, which is great when I am trying to differentiate my instruction. I will use a simpler version in the future and will not use some of the traditional strategies that are complicated and complex. I will continue to use pairs and groups of three or more. Using groups of four was a little more difficult due to the socialization going on among the students, but it was a great strategy to use for lab days. Also, the long term project was a success. The students had their role and their parts to participate in the long term project. I will continue to use more collaborative strategies in the future. I think that research is important because it allows for teachers to see what works and does not work with helping our students be successful. The students enjoyed working together, and I enjoyed their positive comments.

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