Building Collaboration through Participatory Action Research

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Abstract

Our private, bilingual junior high school in Zacatecas, Mexico used participatory action research (PAR) to try to answer the question: " How might we improve student collaboration?" This 2 cycle PAR project used surveys and focus groups to look into what teachers, students and parents thought about collaborative learning and its effectiveness in our school. In the first cycle, there were 5 primary findings. The second cycle was the implementation of various strategies for dealing with the needs determined in cycle 1. These efforts were evaluated by using teacher interviews and student focus groups. The overall findings were that teachers believed that they were better able to find solutions for roadblocks to collaboration in their classes and students expressed a satisfaction with their ability to do better collaborative work with cross-curricular projects. Finally, two additional outcomes, which were not anticipated, were achieved. These transformations were: moving from a blame culture to a solution finding culture in our school and beginning to use strategic, multi-year professional development planning.

Keywords: action research, collaboration, school culture, Mexican schools

1. Introduction

This participatory action research (PAR) project grew out of the understanding that our students do not work together collaboratively. Collaborative learning and collaboration in general are two important 21st century skills that a student must develop to be fully prepared to succeed in today's environment (Trilling & Fadel, 2009). Teachers and administrators at our school have seen quite a bit of anecdotal evidence that our students are lacking the ability, desire, or both to collaborate effectively. This evidence has come in the form of student arguments as they attempt to work in teams, of one student doing the entire team's work, and of poor student work on collaborative projects.

The final incident that pushed us to undertake this PAR project came the day an 8th grade student started crying in class as a result of a problem working with his collaborative team in class. He was sent to the academic coordinator for our school. Later, when she told me about what had happened, we began to discuss how our students did not show that they had the skills to work well collaboratively. This realization hit us hard because our school considers the ability to collaborate as an essential skill that our students should learn. At this point, I became very enthused about the possibility of exploring how to improve student collaboration.

This PAR study takes place in a private, bilingual middle school in northern Mexico. The students are 7th -9th graders. There are approximately 200 students in the suburban school. At the time the study began, the school had been in existence about 3 years.

We made the decision to form our participatory group including the principal, the academic coordinator, and three science teachers. This group was chosen for two reasons: 1) to keep those actively participating in the research project to a workable number and 2) because of the interest in these five people in being involved.

2. Literature Review

2.1 Collaborative Learning

Collaborative learning is a learning strategy which promotes both academic and social growth (Pantiz, 1999). Students are able to learn academic content while at the same time developing valuable social skills such as working together, time management, individual and group responsibility, and interacting with students who are like them and who are different from them. This development comes from the type of work that is done in collaborative learning. Johnson and Johnson (1994) delineate five key components of collaborative learning: positive interdependence, face-to-face interaction, individual and group accountability, social skills, and group processing. At the same time that students are learning academic content, and developing as a social person, they are also developing their higher order critical thinking (Webb, 1982).

2.2 Action Research

According to Mills (2003) action research is "any systemic inquiry conducted by teacher researchers, principals, school counselors, or other stakeholders in the teaching/learning environment to gather information about how their particular schools operate, how they teach, and how well their students learn" (p. 5). This research is carried out by: selecting a focus, clarifying themes, identifying research questions, collecting data, analyzing data, reporting results, and taking informed action (Sagor, 2000). This process leads to an added benefit of not only school improvement but also of teachers and administrators learning more about themselves (Hendricks, 2009).

3. Cycle 1

3.1 Methodology

The first step was to develop our overarching question: How might we improve student collaboration? We then divided this question into three sub-questions: a) What do we believe about student collaboration?, b)What are some of the things we are doing to promote student collaboration? and c) What support do teachers need in order to increase student collaboration?

We then began by surfacing assumptions we had about the topic. We did this by completing a surfacing assumptions document (Appendix 1) which asked: what do we know or think we know about the topic, what qualitative data is available to verify this knowledge, what quantitative data is available to verify this knowledge, and rating from one to ten each entry where 10 constitutes a convincing argument and 1 is pure assumption. After looking at prior knowledge, we developed a logic model (Appendix 2) for the first cycle. This helped us to understand how our questions relation to previous studies, variables to be measured, how we would measure, and the form of data analysis.

Once we understood what we wanted to investigate and how we would do it we created out data gathering tools. Our research question and sub questions were explored through parent and teacher surveys, student and teacher focus groups, and document reviews (Appendix 2). With this data we were trying to understand parent, student, and teacher perceptions of student collaboration; teacher perceptions of support needed to teach student collaboration; and what we were doing as a school to promote collaboration.

Parents were sent a survey with five open-ended questions (Appendix 3). The questions included: 1) What things do you see that this school does to promote student collaborative learning?, 2) What are some of the positive reactions that you see in your child in regards to doing collaborative work?, 3) What are some of the negative reactions that you see in your child in regards to doing collaborative work?, 4)What additional things would you like to see the school do to help your child become a more effective collaborator?, and 5) Please list any other comments that you have regarding improving student collaboration.

All teachers in the school were also given a survey with five open-ended questions (Appendix 4). The questions included: 1) What things do we currently do as a school to promote student collaborative learning?, 2) Do you feel that you have had adequate training to prepare you to guide students in collaborative learning?, 3) In what ways could the administration provide you with support that would strengthen your ability to work with students on collaborative learning?, 4) What types of support from other stakeholders would be helpful to promote greater and more effective student collaboration?, and 5) Please list any other comments that you have regarding improving student collaboration.

Ten students were selected from each grade for a focus groups. The students were asked what they liked and did not like about collaborative learning, and what they felt they needed to become better collaborators. Then all of the science teachers were chosen to participate in a focus group. They were asked how they perceived their students' abilities to learn collaboratively and what the challenges were to the collaborative learning process.

3.2 Findings

After analyzing the data gathered through parent and teacher surveys, teacher and student focus groups, and document analysis: we came up with the following findings:

Parents' perceptions-
- Students enjoy collaborative projects.
- Students learn valuable skills through collaboration.
- Students get frustrated when their teammates do not participate as expected or do not fulfill their agreed upon group commitments.

Students' perceptions-
- Students like doing collaborative projects.
- They often feel that they do not have enough guidance on collaborative activities.
- They recognize that they do not have a high tolerance for frustration when working in teams.
- Students feel that receiving a group grade on collaborative activities when not all of the participants work equally is unfair.
- Close to 75% of the students were happy with having the same team assigned by their tutor for work in all of their subjects per bimester and about 25% thought that they should be able to pick their own teams.
- Students would like time in class to organize their group collaborative projects.
- Students need thorough feedback that includes how to improve their final product and specifically why they did not receive all of the points in each area.
- Students asked to change the seating arrangement and desk arrangement when doing CL in class.
- They were concerned about how much money they had to spend on some CL projects.
- They say there are too many CL projects and/or too many due at the same time.
- They are concerned that in Homework Club there is not enough time to finish all CL projects or that some of the teammates will not or cannot stay to work during this time.
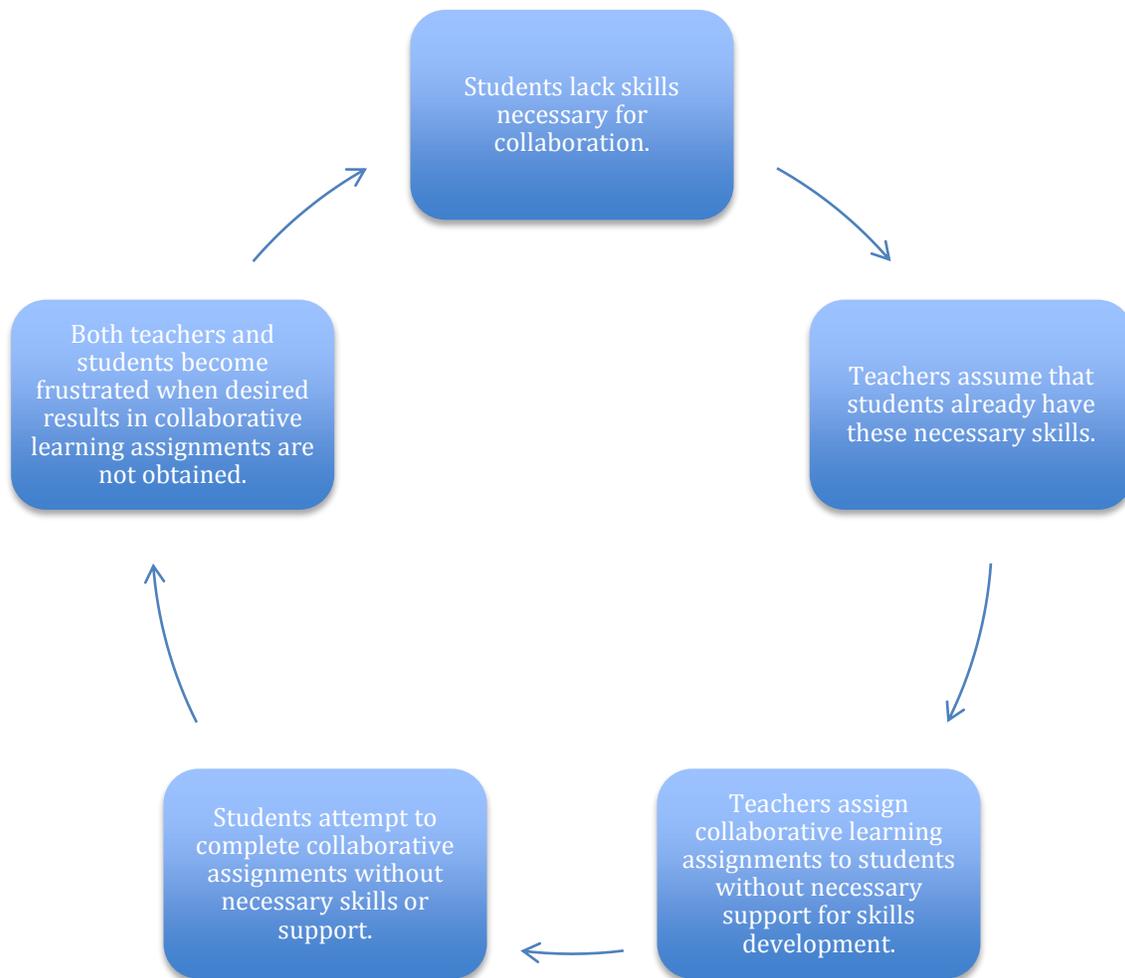- They believe that CL projects should not be essays.

Teachers' perspectives-
- It is important for the teacher to give detailed instructions for what is expected as a final product.
- It would be helpful to have partial revisions of the work and the process in stages to ensure students are on the right track and to deal with team problems.
- There needs to be an evaluation that includes individual as well as team aspects.
- Students need to know what to do when someone on their team will not do his/her share.
- Students lack leadership abilities in that some do not know how to lead when doing collaborative work and others are very pushy and want everything his/her way.
- Teachers expect students to be able to work well collaboratively without being told how.
- Teachers want to learn how to better guide students in their collaborative work.
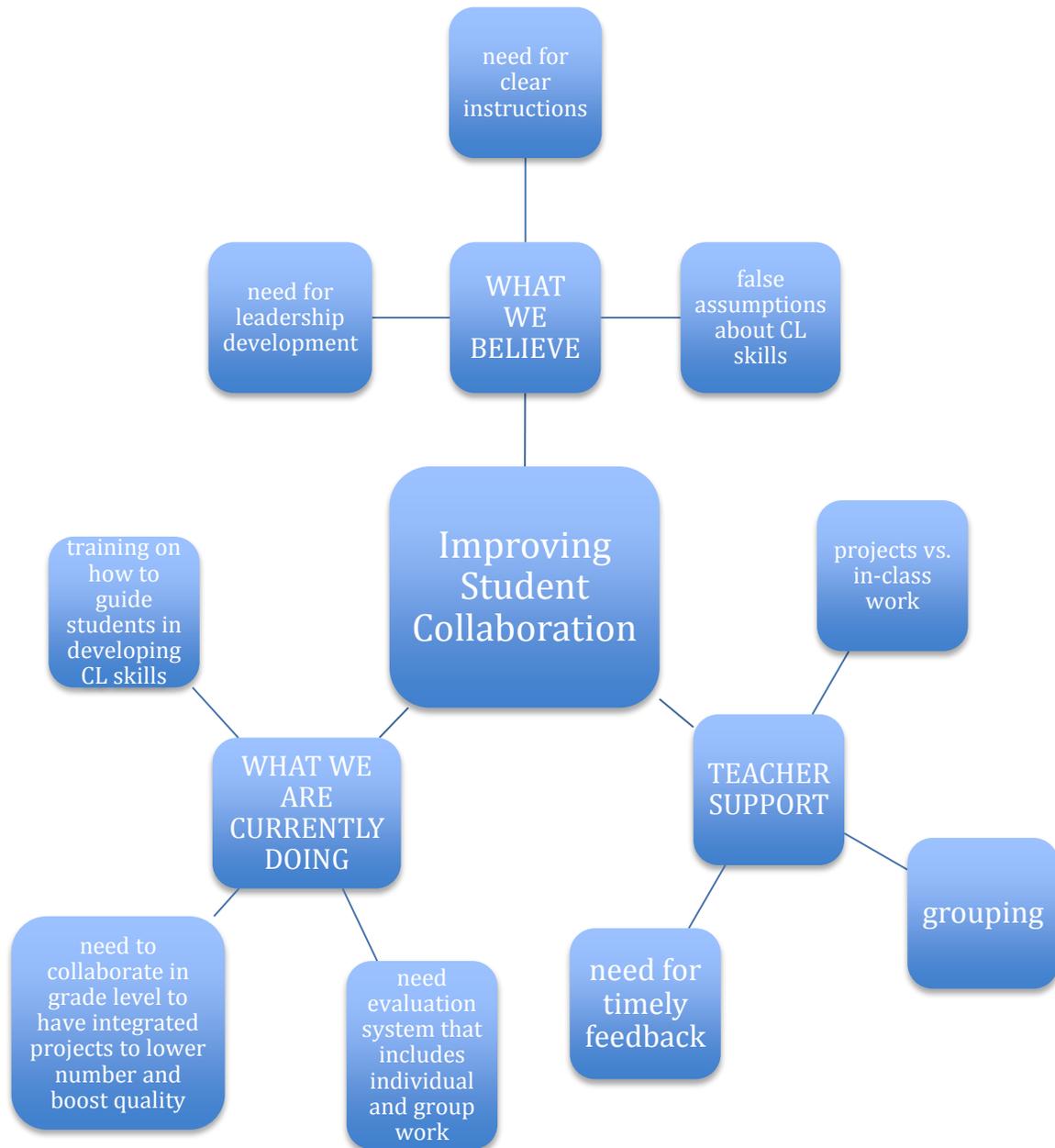
3.3 Interpretation

In general, we came to understand that we had several problems with our current way of working with collaborative learning. This destructive cycle is illustrated in Figure 1.1. As we began to understand what was taking place with collaboration at our school, we began to call it our *destructive cycle of collaborative learning implementation.* Probably the most relevant problem was the assumption that the students come to class with a set of skills that we think they should have. This was a turning point, when we began to think about how we as teachers and administrators can meet students where they are and use instructional interventions to build those skills (Payne, 1996).

Figure 1.1 Destructive cycle of collaborative learning implementation

After reviewing the findings and creating our *destructive cycle of collaborative learning implementation,* we grouped our findings regarding improving student collaboration into three categories (Figure 1.2): what we are currently doing, what we believe, and teacher support.

Figure 1.2 Cycle 1 findings regarding improving student collaboration

The first cycle helped us to see that we needed to understand what was truly happening with regards to student collaboration and to quit working from assumptions. This understanding led to six conclusions. The first important conclusion that we reached in cycle one is that our students do not possess the skills to be effective collaborators. The second important conclusion is that our teachers generally tend to assume that the students already possess these necessary skills and therefore do no spend time developing these skills in the students. Third, our teachers do not feel prepared to guide the students in developing collaboration skills. Fourth, students need fewer projects to be able to do quality work. Fifth, the lack of individual accountability in the grading scale effects student accountability and motivation. Sixth, our students generally lack the leadership abilities necessary for effective collaboration.

With the understanding that our students are collaborating but not as well as we would like them to and the realization that the main reason is their lack of collaborations skills, the next step needed to be to help the teachers learn how best to guide their students in the collaboration process as they facilitate the development of these necessary collaboration skills in the students. This training process would not be accomplished with a one-time professional development day. The teachers should be coached through the process of implementation after they receive the appropriate training. These same teachers should work together collaboratively as they evaluate the effectiveness of the implementation. The teachers would also need to do curricular mapping to find where they could use joint projects to reduce the number of projects from eight or ten to around three or four every bimester. Finally, an evaluation system for collaborative projects, which takes into account individual, as well as, group performance, needed to be established.

4. Cycle 2

4.1 Methodology

In cycle two, we used the same overarching question from cycle 1: How might we improve student collaboration? Taking the lessons learned in cycle 1, we formed two sub-questions for cycle 2: a) How will professional development on collaborative learning effect teachers efficacy in implementing collaborative learning activities? and b) How will creating cross-curricular projects effect student collaboration?

We took three important actions to address the needs identified in cycle one. First, we held two professional development sessions on how to help students to learn how to collaborate. The sessions included topics such as: defining collaboration, grouping, instructions, timely feedback, seating possibilities, evaluation, teacher roles and responsibilities, and student roles and responsibility. This was followed by classroom observation of application of CL lessons, one on one coaching with teachers, and discussions with the whole faculty during staff meetings.

The second action was to do competency mapping by grade and look for where different subjects could work together on projects. This brought the number of projects down to two to four per bimester for each student. While some of the projects are individual, the majority are collaborative. The process of working together on cross-curricular projects has helped to strengthen our grade level professional learning communities as the teachers have taken ownership of their projects (DuFour, DuFour & Eaker, 2008). Finally, we developed a grading strategy for collaborative projects, which takes into consideration overall quality of the product generated by the team, the individual effort, and the team's opinion of how they worked together.

After implementing these three steps over time, we conducted interviews with teachers (Appendix 4) to measure how they felt about the process and lessons learned. We also conducted student focus groups to measure students' opinions about their current collaborative learning experiences.
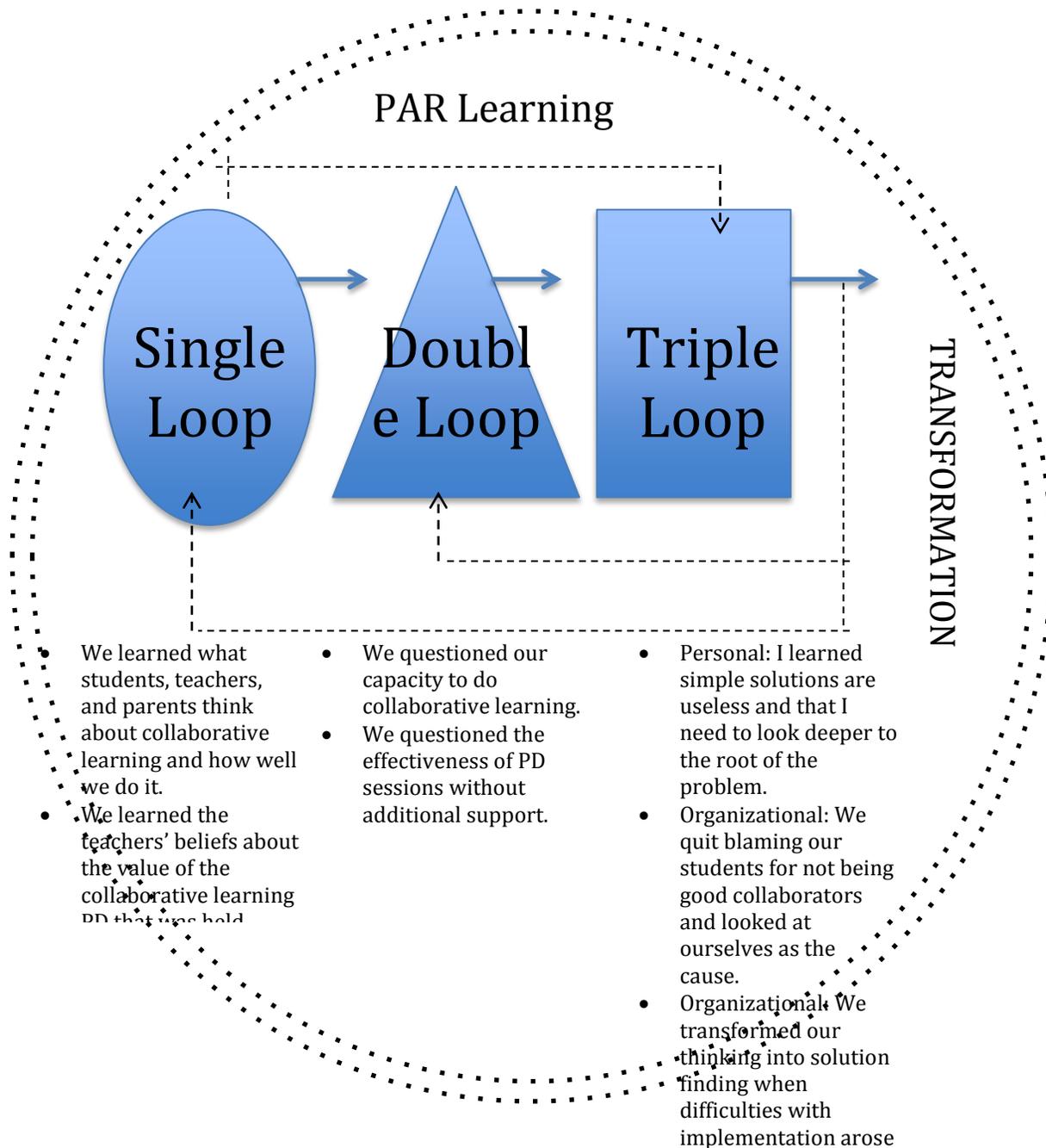
4.2 Findings

Teachers began to come to coaching sessions with questions of how to change and improve their collaborative assignments and projects in order to deal with areas where they felt the students were not successfully collaborating. While still expressing frustration at perceived defeat, the teachers quit talking in terms of the students' failures and started searching for solutions. The process of inquiry has changed the way many of our teachers look at problems. As Lambert (2003) notes, "Information gleaned through inquiry informs both decisions and practice. (p. 6)" Many of our teachers stopped complaining about why the students could not do certain things and began to ask themselves what they could do to facilitate the learning of the necessary skill. Students also expressed that the cross-curricular projects helped them to have time to do a better job because they were not working on so many projects at once.

4.3 Interpretation

There was definite single, double, and triple loop learning (Romme & van Witteloostuijn, 1999) at the personal and the organizational level throughout this project. I expect the learning gained will serve me and the school; not just for the issue of student collaboration, but for other school improvement areas as well. The learning can be visualized in figure 2.1. Our single loop learning included finding out what stakeholders think about collaborative learning and how well we had been working with it. It also included understanding teachers' opinions about our CL professional development. Our double loop learning was mostly focused on questioning our own capacity with regards to CL and questioning our effectiveness in the use of PD. In both of these areas, we were looking at the underlying causes as to why we were effective or ineffective.

Our organizational triple loop learning has transformed our way of thinking and acting regarding success with our students. We have come to see, as a result of our PAR process, that we cannot blame our students for their failure but instead we must see what else we need to do to help them be successful. This has in turn pushed us to be an organization that looks for solutions rather than justifications. My own personal transformation also has to do with solution finding. However, for me the transformation is that I have become an inquirer. In the past, I was quick to think that I understood a problem and was ready immediately to suggest solutions. Now, as a result of seeing that my assumptions at the beginning of our PAR process were incomplete and sometimes incorrect, I have come to see that I need to get to the root of the problem before diving in with all the answers.

Figure 2.1 Single, double, and triple loop learning

PAR Learning

Single Loop

Double Loop

Triple Loop

TRANSFORMATION

- We learned what students, teachers, and parents think about collaborative learning and how well we do it.
- We learned the teachers' beliefs about the value of the collaborative learning PD that was held

- We questioned our capacity to do collaborative learning.
- We questioned the effectiveness of PD sessions without additional support.

- Personal: I learned simple solutions are useless and that I need to look deeper to the root of the problem.
- Organizational: We quit blaming our students for not being good collaborators and looked at ourselves as the cause.
- Organizational: We transformed our thinking into solution finding when difficulties with implementation arose

As a result of this PAR project there were several political and policy implications that will aid us in being more effective and avoiding actions which could lead to a downward spiral of attitudes and relationships at the school. Politically, we learned that teachers must be dealt with carefully as we explore our areas for improvement.

This means that the leadership team must think about how to form the change initiative to include an emphasis not only on task success but also on maintaining relationships as a high priority (Bolman & Deal, 2008). A very positive political implication was that teachers embraced personal responsibility for solution finding. As Zander and Zander (2000) say, our teachers began to see themselves as "the board on which the whole game is played. (p. 141)" They understood that they have the power to make a change. In the area of school wide policy, we had three important outcomes: we established collaborative learning as a professional development (PD) focus for the summer and the following school year; we began to use strategic, multi-year planning regarding PD rather than doing it piecemeal; and we established that in our school all PD requires follow-up and support or it is not worth having.

5. Discussion

We can see from our two participatory action research cycles that the building the research on the previous cycle was critical in helping us go deeper in critical understanding about our education processes and beliefs not just about collaborative learning. James, Milenkiewicz, & Bucknam (2008) state, "the iterative process, combining research and reflection, allows educators to understand their topics and the systematic mechanisms that position them to create sustainable change" (p. 148). We feel that the process of diagnose, act, measure, and reflect that they establish helped us to delve deeper into the underlying issues for school improvement at our institution. We learned through our collaborative inquiry that process was not neat or linear (Mills, 2003) but it was powerful.

6. Implications

Three critical points have been made clear to me as a result of this participatory action research project. First, as principal of the school, I need to promote the growing of a culture that encourages us to look deeper at situations for their cause. This allows us to see what real barriers to success are and look for real solutions. Second, as Fullan (2010) points out change must be focused on a small number of important goals. I have come to realize that trying to introduce too many new initiatives at the same time can cause us to lose focus and not advance in any of them. I need to take a longer-term view and be strategic in the initiatives that are introduced. Determining this hedgehog concept (Collins, 2001) is not always easy when you feel like you want to do everything well and that everything is important. But I can see that positive cultural change in my school (Schein, 2004) cannot occur if I send mixed messages about what is important by focusing on one thing one day and something else the next. Finally, I have come to see how working as a team and focusing on achieving the maximum benefit from each person's strength is much more effective than trying to remediate each person's weakness (Buckingham & Clifton, 2001). When I see the transformations that have taken place over the last two years as a result of this PAR project, I understand that our institution is strong and has great potential to achieve more because of what each individual can contribute to the whole.

7. Suggestions for Further Research

The learning from action research project suggests opportunities for further research in two areas. First, it could be beneficial to construct a strengths map of the organizations personnel and look at what projects or activities that person is involved in within the school. This could provide some insight regarding capacity building at the institution. Second, it might be advantageous for a school to enumerate its primary activities and determine their relationship to the vision of the school and then look at faculty and staff's perceptions regarding whether those activities contribute to the vision and how.

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Appendix 1

Surfacing Assumptions

What we know or think we know about the topic	Qualitative data available to verify this knowledge	Quantitative data available to verify the knowledge	Rate on a scale of 1-10, where 10 constitutes a convincing argument and 1 is a pure assumption
It is necessary for teachers to instruct students in the roles and responsibilities of collaborative learning (CL) and to subsequently guide their practice for students to develop the necessary skills to learn collaboratively.	Literature (Johnson and Johnson) which describes the collaborative learning process and how to carry it out.		9-10
Our teachers are not sufficiently skilled in guiding students to learn collaboratively.	Some teachers consistently put the lowest performing students in the same teams for collaborative work.	The majority of our teachers have not been certified in the use of CL.	7
Students don't have a clear idea about the roles and responsibilities in CL.	In classroom observation of student projects, although students are working in groups, they demonstrate individual knowledge about part of the topic.		6
Students do not use the social skills necessary to ensure the whole team is learning when using CL	Anecdotal evidence of students leaving a CL work session with their team angry, frustrated or in tears.		5
The importance of developing teamwork skills has not been stressed enough at our school as an essential skill.	There is no document, requirement, or statement shared with teachers and students stressing or explaining the importance of teamwork skills.		8
Students consistently divide up work to be done collaboratively, work individually, and then put the pieces together as their finished product without having shared the knowledge with one another.	Student comments overheard by teachers in classes.		3
The work in student collaborative teams often falls to one or two responsible students.	Feedback/complaints from students suggest that this is true. Students have reported to their teacher when one of their classmates does not participate in the collaborative project.		5
The ability to work in teams and promote the success/learning of everyone in the team is an essential skill for our students to develop.	Current literature on 21st century sills demonstrates this fact. i.e. Covey's 7 Habits		9-10

It is evident to us that we have not spent time looking at the issue, because there is no quantitative data about the issue. Much of the qualitative data is mostly anecdotal.

Appendix 2

Logic Model

Questions to be addressed	Previous studies	Variables-elements to be measured	Local measurements	Form of Analysis
Overarching Question: How might we improve student collaboration? Sub-questions: What do we believe about student collaboration? What are some of the things we are doing to promote student collaboration? What support do teachers need in order to increase student collaboration?	Beebee, A. B., Masterson, J. T. (2003). Communicating in small groups: Principles and practices, 7th edition. Allyn & Bacon Johnson, D. W., Johnson, R. T., & Holubec, E. J. (1993). Cooperation in the Classroom (6th ed.). Edina, MN: Interaction Book Company. Johnson, R.T., & Johnson, D. W. (1986). Action research: Cooperative learning in the science classroom. Science and Children, 24, 31-32.	Perceptions of student collaboration Teaching strategies Perceptions of needed teacher support	Teacher focus group- perceptions and what we are doing now Student focus group- perceptions and what we are doing now Survey to identify categories and themes regarding teachers' perceptions of needed teacher support. Review of documents- guidelines for collaborative work (what we are doing now) Parent survey regarding perceptions of student collaborative work	Graphic organizer Looking at alignment through triangulation Qualitative Coding Cross cultural analysis Collaborative team: principal, academic coordinator, science coordinator

Appendix 3

Student Collaboration
Parent Survey

We are looking for the best ways to help our students become better collaborative learners. Your insights and opinions are invaluable for shaping the direction of this effort. Please answer the following questions based on your experience and perceptions with your children. Thank you in advance for taking part in this important project.

1) What things do you see that this school does to promote student collaborative learning?

2) What are some of the positive reactions that you see in your child in regards to doing collaborative work?

3) What are some of the negative reactions that you see in your child in regards to doing collaborative work?

4) What additional things would you like to see the school do to help your child become a more effective collaborator?

5) Please list any other comments that you have regarding improving student collaboration.

Appendix 4

Collaborative Learning
Teacher Survey

We are looking for the best ways to help our students become better collaborative learners. Your insights and opinions are invaluable for shaping the direction of this effort. Please answer the following questions based on your experience and perceptions. Thank you in advance for taking part in this important project.

1) What things do we currently do as a school to promote student collaborative learning?

2) Do you feel that you have had adequate training to prepare you to guide students in collaborative learning?

3) In what ways could the administration provide you with support that would strengthen your ability to work with students on collaborative learning?

4) What types of support from other stakeholders would be helpful to promote greater and more effective student collaboration?

5) Please list any other comments that you have regarding improving student collaboration.