Creatively Constructing a Community of Learners

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Abstract

This action research study investigated first-graders' attitudes toward being a community of learners as a result of their involvement in constructing their classroom environment. The children's attitudes throughout the year were measured through student surveys, parent surveys, student reflections, teacher reflective journal entries, and informal reading inventories. Even though the experimental group's perceptions of helping, closeness, collaboration, and student influence decreased after their involvement in the intervention, these perceptions were still higher than those measured at the beginning of the year. These students' attitudes pertaining to positive interpersonal relationships never lessened but grew steadily stronger throughout the year. The results also indicated that the experimental group perceived itself more as a community of learners at the end of the year than did the control group. Involvement in making decisions with classmates, collaborating in learning with peers, and engaging in multi-age activities prompted feelings of community among the children. Authentic opportunities for student-driven learning, decision making, boosting self-confidence, and collaborating emerged. Notable gains in the experimental group's reading achievement were observed. The conclusions paralleled the transactive model of teaching and supported the belief that encouraging students to socially and physically create their learning environment promotes learning while building a sense of community. Limitations of the study, such as student test anxiety, were addressed. Concluding thoughts highlighted insights into how to allow the construction process to flow more smoothly and be more effective for all involved.

Introduction

Unless children are actively and socially constructing learning themselves, they are merely recipients of a teacher's perceptions of knowledge that she or he deems is relevant for children to learn. Thus, the hierarchy of teacher over students is maintained, where the former is the all-knowing person of authority, and the expectation for the latter is to be passively receptive. These individuals may all work together in the same classroom on curricular standards and outcomes, but they do not become an intrinsically motivated community of learners.

I teach first grade at a parochial school in the Midwest. Like most teachers, I have usually made and then acted upon decisions about the physical nature of the classroom and instructional curriculum for the students before the first day of the school year. To catch students' eyes, I place a combination of commercially purchased and computer-generated banners and posters on classroom walls, theme-related decorations on bulletin boards, and a welcome-back-to-school display in the hall outside the classroom door. Positioning student desks and chairs in rows assists me in learning students' names. Placing the tables, filing cabinet, podium, and chart holder around the perimeter of the classroom allows the students and me to move easily around the room. The classroom is usually not changed unless I see the need to rearrange it for instructional or behavioral purposes. The selection and placement of these classroom and hall decorations, along with the furniture arrangements, have always been based on thorough, time-consuming, and student-centered curricular decisions I have made over the summer.

Spurred on by the very best of intentions for the learning of the students, in past years, I have inadvertently left crucial participants out of preparations of the learning process—the first-graders. I ignored opportunities for the children to build their learning environment as well as their classroom community of learners with their fellow students and teachers.

The focus of this action research study was to investigate how the involvement of first-grade students in creatively constructing the physical features of their classroom from the beginning of the year affected their attitudes as members of a community of learners. The goal was to increase the first-grade students' perceptions of themselves as members of a healthy community of learners, involved in both classroom management practices and curricular decisions.

Literature Review

Educators who adhere to a transmissive style of teaching believe that "The teacher's role is to transmit those facts, principles, and theories directly to students' minds, then to measure the accuracy of the reception. The students' role is to receive, understand, and remember information that is transmitted" (Lapadat, 2000, p. 2). Teachers whose students create projects that appear to reflect reconstruction of knowledge may actually be attempting to improve their students' receptivity or ability to receive information presented by them and experts in the content field (Lapadat, 2000). Even when such educators adapt their teaching styles to the diverse learning nature of students (Lapadat, 1994, 2000; Wang, 1992), they are still instructing students in a transmissive mode; students are still expected to closely align their conceptions [of truth] to those approximated by the experts and conceived, albeit adapted, by the educators (Lapadat, 2000).

Unlike the transmissive model, the transactive model of teaching, based on Dewey's beliefs in contextualism, advances "...field studies and immersion in experiences to stimulate learning" (Fogarty, 1999, p. 76). It allows for the emergence of understandings to occur as students physically interact with each other and their environment, employing a variety of social factors—such as language, ideas, and artifacts. They are not mere recipients of knowledge transmitted to them by another but are simultaneously contributing to both their social and physical world (Lapadat, 1995, 2000). Their environment becomes one of creative construction, of which Lindfors (1987) notes: "The child participates in a social world and out of diverse experience—linguistic and nonlinguistic—the child constructs, *builds*, sense" (p. 158). Lindfors further states, "The child's expression is the result of his observing, noticing, selecting, trying out, hypothesizing, testing, participating" (p. 159), which results in expression of the meaning, or sense, the child constructs of the world.

In Collinson's (2000) study on learning style preferences and academic success of elementary students, he credits Birrell, Phillips, and Stott (1985) with stating three factors for school achievement: "...attitude for learning, capacity for application, and emotional stability" (p. 42), all of which are generated in a transactive or creative constructive classroom of a community of learners. Students and teachers have daily opportunities to develop positive learning attitudes by engaging in areas of interest that become intrinsically motivating to them.

Katz (1993) defines a disposition toward learning as "a pattern of behavior exhibited frequently and in the absence of coercion, and constituting a habit of mind under some conscious and voluntary control, and that is intentional and oriented to broad goals" (p. 16). She suggests that "strengthening desirable and weakening undesirable dispositions" should be among educational goals for many reasons (p. 17). First, just having students acquire knowledge and skills will not guarantee that they will use and apply them—teachers need to take into consideration strategies that can strengthen skills. Next, knowledge and skills may be gained through instructional means that may actually harm or weaken the desire to use the disposition. In addition, some significant educational dispositions may be innate and in turn affected by experiences that children encounter, whether they are supportive or destructive. Katz also identifies the strengthening of desirable dispositions and weakening of undesirable dispositions as critical elements when choosing curriculum and strategies for teaching. She notes, however, that the disposition to learn may be overshadowed by the learning process if students become consumed by the level of their performance and others' judgment instead of their commitment to the task at hand. Thus, being aware of students' reactions to the feedback given to them by adults is imperative to attaining an optimal amount of positive response. Katz believes that measures to evaluate and assess dispositional goals must be taken into account when determining the effectiveness and efficiency of the educational program. Finally, she suggests that children are more apt to gain dispositions through adult modeling rather than direct and explicit teaching.

According to Lindfors (1987), "...it is in the context of authentic experience of language in the classroom that children's language development is fostered in all aspects—cognitive and social, structure and use, oral and written channels of expression" (p. 222). Reading, as one of the language processes, incorporates all of these aspects as noted in the author's vision of reading. She believes that reading "...is active creative construction of meaning as one interacts with the pragmatic, semantic, syntactic, and grapho-phonic information the author provides" (p. 247). Lindfors further offers several enriching language experiences that a transactive classroom provides to aid students in "...making and expressing meaning" (p. 247). They include children participating in planning sessions in small groups, assisting a classmate in solving a problem with writing, and providing information as an expert. In addition, Lindfors maintains that children in the constructive school environment are furnished with a print-rich environment in the forms of books, schedules, and newspaper articles. She asserts that by learning in an atmosphere that holds no risk "...the child can invent, explore, question, make constructive errors, seek assistance" (p. 248).

Constant refining of knowledge occurs while being actively engaged in a wide variety of physical and social interactions, exchanges, and learning strategies, such as the use of "hands-on" activities, which are supported by Piaget's discovery learning designs (Fogarty, 1999). Vygotsky visualized children cooperating in small groups, collaborating as a whole class, or working individually to make decisions, with the teacher acting as a guide or facilitator (Oxford, 1997). "Children can imitate a variety of actions that go well beyond the limits of their own capabilities. Using imitation, children are capable of doing much more in collective activity or under the guidance of adults" (Vygotsky, 1978, p. 88). These experiences result in meaningful and conceptual learning in contexts in which "...less separation exists between in-school and out-of-school learning" (Heuwinkel, 1996, p. 30). By providing Vygotsky's 'scaffolding' (Oxford, 1997, p. 448), teachers provide varying levels of assistance required for students to become increasingly self-directed in their learning. With the optimal support of their teachers and other students in their classroom, children are working in the realm of their learning potential or within their "zone of proximal development (ZPD)" (Oxford, 1997, p. 448). Based on students' own learning styles and ability levels, they are able to construct their own knowledge.

Learners' confidence, Cusack (1995) believes, is strengthened in a trusting environment that downplays competition among its members and supports collaboration in purposeful work. With an intrinsic motivation to learn, children learn more. Bryant (1999) maintains that for students to learn more they must be able to assess their own learning. To evaluate their learning, they have to be able to share and then receive verification of their knowledge from fellow classmates in an environment in which the students already "...feel safe, valued, and supported by feedback" (Peterson, 1992, as cited in Bryant, 1999, p. 110)—in other words, a classroom that allows many opportunities to internalize concepts related to democracy and diversity.

According to Fu (2000), students become comfortable taking risks when they receive intellectual and emotional support from teachers and fellow classmates. They become self-directed in their learning and gain problem-solving skills. For example, during a show-and-tell time, Fu discusses how all of her students have an opportunity to participate, whether asking questions or offering constructive comments. At other times, she notes that they actively engage and converse with each other in tasks that are meaningful and that aid them in making sense of their learning. While spending time engaged in learning together, the teacher attains an appreciation for the students' different learning styles and strategies. As a result, a closer and more personal relationship develops between teachers and students. Students gain a sense of responsibility for themselves and their learning as they "construct their own knowledge" (Fu, 2000).

Even though educators may believe they are actively engaging students in constructivist learning, in actuality they may still be transmitting knowledge to them, with the goal of having the students' learning conceptions [of truth] match their own and those of content-area experts. A healthy and intrinsically motivated community of learners cannot thrive when students are denied opportunities to construct their own knowledge in active physical and social contexts with each other and when the teacher cannot take on a supporting role as a facilitator. While more learning may occur in a caring and open environment, to ensure its success, teachers and students have to devote time and effort, be willing to take risks, and be patient and flexible.

After an extensive search, I was unable to locate any action research studies that investigated the connection between involving students in constructing their physical classroom environment and the effect this action would bear on their sense of community, and on dispositions, interactions, and attitudes toward learning.

Research Design

Overview

I utilized a quasi-experimental action research study with a single-group time series design. The site was a first-grade classroom with 24 students as an intact group, not randomly assigned to the experimental group. The experimental treatment or intervention, which was the creative construction of the classroom, was inserted nonrandomly between several measures. The measures administered in August 2002 before the experimental treatment were the pre-intervention *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) and the pre-*Analytical Reading Inventory* (Woods & Moe, 1999). Three other measures followed the experimental treatment. The post-construction *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) was given in December 2002 after the small construction groups followed through on all of their decisions. The post-intervention *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) and the post-*Analytical Reading Inventory* (Woods & Moe, 1999) were administered in May 2003 after all of the whole group and individual decisions had been completed. Even though the classroom was essentially constructed by the end of December 2002, students were still involved in decision making throughout the rest of the school year.

Monthly student journal reflections, daily teacher anecdotal observations, and audio and video recordings were used to capture the construction process. Parental perceptions were also gained through a parent version of the *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) given in October 2002 and February 2003 and a *Parent Sense of Community Interview* completed at the end of the intervention.

The attitude inventory, the *Sense of Community* measure, developed from the findings of Battistich and colleagues' Child Development Project (Battistich, Solomon, Kim, Watson, & Schaps, 1995, as cited in Schaps, Lewis, & Watson, 1997), consisted of two subscales: the student's perception of support received in the classroom and the level of the student's participation and influence in the classroom. In the original study, reliability and validity were established for use by third- through sixth-grade individuals and classrooms. High internal consistency ($a = .91$) was shown between the measure items, and those with "low variability or low communality" (Roberts, Hom, & Battistich, 1995, p. 5) were not included in the measure. Convergent validity, with a correlation of .35 ($p < .001$), was established by comparing students' and teachers' perceptions of what constitutes a school as a community for students.

I administered the *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) and the *Analytical Reading Inventory* (Woods & Moe, 1999) individually to the experimental group to further strengthen the reliability and validity of these assessments. As I assessed the first subject of the random sample with the *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997), the child asked for the meaning of one of the items: "Students in my class just look out for themselves." I explained that it meant that the students in the class only look out for or take care of themselves. I then phrased that particular item in the same way with all of the remaining subjects. Paralleling the words of each statement, I also changed each one into a question that was easier for students to understand. For example, "My class is like a family." became "Is your class like a family?" I then followed up with "Do you feel this way a lot, a little, or just sometimes?" For the second set of questions on making decisions, I followed up a student's initial response of "yes" or "no" with "Do you feel this way always, often, sometimes, hardly ever, or never?"

Internal validity of the results for the action research study was increased through the efforts undertaken by the participants' former kindergarten teachers. To ensure equivalency between the two first-grade classes, they had devised class lists based on three variables: gender, personality, and reading and math performance. All of these were possible control variables for this study. Internal validity was also bolstered through another possible control variable—the similarities in teaching styles, curriculum, instruction, and discipline methods between the other first-grade teacher and me. After a hiatus of 15 years from the teaching field, my grade-level colleague returned to teaching and was my paraprofessional during the 1995/96 school year. She was employed as the other first-grade teacher the following year. We met at least weekly over the next 7 years to plan instruction for grade-level curriculum outcomes and standards for the content areas. We implemented the school discipline policy of using colored cards for monitoring student behavior in our classrooms. A possible intervening variable was the variance in our students' learning styles and scholastic abilities.

In addition, to strengthen internal validity, I did not tell the students that they were participating in a study, in order to avoid influencing their perceptions about becoming a community of learners. In other words, as I led them through the steps of constructing the classroom, I did not tell them the purpose of the activities other than that I was fulfilling a requirement to graduate with a master's degree. At the Back-to-School Night, I informed the parents about the study and asked them to refrain from unduly influencing their children's perceptions by making connections and drawing conclusions for them. Listening to their children talk about their school experiences was allowed, but the parents were to let them draw their own conclusions about their classroom community.

Research Questions

How will the first-grade students' perceptions about being members of a community of learners change after creatively constructing their classroom?

Which constructivist activities affected the first-graders' community of learner attitudes? That is, which ones prompted or inhibited them from feeling like members of a community of learners?

Will there be an increase in the first-graders' reading achievement after creatively constructing their classroom?

Participants

The subjects of the experimental group in the study were the class of 24 first-grade students for the 2002-2003 school year. The class was evenly divided by gender. Four of the first-graders were of Mexican American descent, while the other 20 students were European American. On the basis of the parents' occupations, the families were representative of all socioeconomic levels, primarily the middle to upper classes.

Using a Table of Random Numbers (Wiersma, 2000), I chose a random sample of 10 participants from the experimental group to be the subjects for the three data collection points of the *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997): (1) before the initiation of the intervention, (2) after the construction of the classroom was completed, and (3) at the conclusion of the intervention. Listing the students in the class in alphabetical order, I assigned a number to each of them from 1 to 24. I then divided the digits in rows 00-02 of the random numbers table into pairs. Finally, I circled each of these number pairs and selected the first 10, which corresponded with student-assigned numbers. In addition to the attitude inventory, these participants were administered the *Analytical Reading Inventory* (Woods & Moe, 1999) at the beginning and end of the intervention.

Beginning with row 30 of the same random numbers table, 10 participants from the school's other first-grade class were chosen as a random sample to be members of a control group. This group was administered the *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) at the conclusion of the intervention. Assessing the control group along with the experimental group at the beginning of the study could have affected the study in several negative ways. One, it would have delayed my students from initiating the construction of their classroom at least an additional day and the start of "school" for them. Also, it could have brought about a Hawthorne effect, causing students in the control group to view the members of their own classroom community differently—thereby skewing control group results at the end of the intervention.

Data Collection

The results of both the *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) and the *Analytical Reading Inventory* (Woods & Moe, 1999) were triangulated for the experimental group's random sample subjects to assess their community of learner attitudes and their reading achievement, respectively. One set of attitude inventories was administered at the initiation of the intervention, another after the physical construction of the classroom, and the final one at the conclusion of the intervention. Using the same attitude inventory, I also assessed the community of learner attitudes of the subjects of the control group.

In addition, the *Analytical Reading Inventory* (Woods & Moe, 1999) was used to determine the frustration reading level, instructional reading level, and independent reading level through three submeasures: a running record, a retelling, and comprehension questions. The word accuracy of the running records and the comprehension accuracy of both the retellings and the comprehension questions revealed each subject's reading level. The percentages of word accuracy and comprehension for each of the three reading levels were, respectively, frustration (below 90%, about 50%), instructional (95%, 75%), and independent (99%, 90%). The *Analytical Reading Inventory* (Woods & Moe, 1999) was individually administered at the beginning and the end of the intervention to the experimental group's random sample subjects.

Additional triangulation was obtained through the parent version of the *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) in October 2002 and February 2003 and the *Parent Sense of Community Interview* in May 2003 to determine the parents' perceptions of the experimental group's sense of community. The term, "parents" also refers to guardians. While most of the students were being raised in two-parent homes, one child was being reared by her grandparents, and two others were being raised by their mothers alone.

I collected data during the 2002-2003 school year based on observations of the actions and conversations of the experimental group (especially the subjects of the random sample), the paraprofessional (as another observer), and myself by recording data through written sources of field notes, videotape and audiotape transcriptions, journal reflections, and anecdotal records, as well as nonprint data sources: videotapes, photographs, and audiotapes. Every month, after the completion of the classroom construction, the students reflected about their feelings and insights on being members of a community of learners by drawing or writing in journals. Written data were stored in separate portfolios of inventories, interviews, photographs, drawings, journal entries, and transcriptions of audiotapes and videotapes. Nonprint data were stored on videotapes and audiotapes.

In addition, I requested permission from the parents of the control group subjects to allow their children to be participants in my action research study. I then individually administered the *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) to the subjects of the control group at the end of the intervention to assess their community of learner attitudes. I collected the data, displayed the information in tables to compare the results to the experimental group's random sample, and stored the data, tables, and each inventory in a portfolio.

Procedures

I used the random number methodology (Wiersma, 2000) to select a sample of 10 participants from the population of both first-grade classes to compose random sample subject groups.

On the second day of the school year, I individually administered the *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) and the *Analytical Reading Inventory* (Woods & Moe, 1999) to each subject of the experimental group's random sample. I collected the data, displayed the information in tables, and stored it in a portfolio.

In the early morning of the third day of the intervention before the brainstorming session on how to construct the classroom, I asked the students where I should write down their ideas and suggestions and why. The students' names in the following dialogue were replaced with aliases (Figure 1).

Figure 1. The classroom on the first day of school.

Mrs. Mester: How many of you noticed when you came in the first day of school that there's nothing on the bulletin boards? Who noticed that? (The students' hands go up. Mrs. Mester then asks the students to put their hands down.)

Mrs. Mester: That's part of constructing the room, where you get to actually build your classroom this year. You get to make decisions as to where to place things, what you want to have in your classroom. What I would like for us to do right now is to discuss what you would like to have in the classroom and where you would like to put it. As you come up with your ideas, do you think I am going to remember all of your ideas in my head?

Class: No.

Mrs. Mester: What do you think I could do?

Class: Write it down.

Mrs. Mester: I could write it down. And where do you think I could write it down? Billy?

Class: On the, on the chalkboard, board.

Mrs. Mester: Good. I could write it on the chalkboard. Where else could I write it down? (An inaudible student response).

Mrs. Mester: I could write it on paper. Anything else? Carrie? (An inaudible student response).

Mrs. Mester: I could write it on cardboard. Karl?

Karl: You could, um, like, you could, like, just have us, have our ideas, like, um, have, like, if you give us ideas, and, and um, and then we can put 'em where you wanted them, then that's ....

Mrs. Mester: Okay, so you're saying that I would come up with the ideas, and you would place the things where I decided they would go? (Some students are responding affirmatively while others are answering "No.")

Ms. Mester: Some say "Yes" and some say "No." Now why are some of you saying "No"? Ben?

Ben: Because we want to put them in the place where we want to.

Mrs. Mester: Okay, that's different. You see, in kindergarten everything was already in place, wasn't it? Okay, what we're going to do this year is different. Instead of me deciding what we're going to put and where we're going to put it, I want you to help me make that decision. I will help you, if you need help, or if there are some things that you think need to be in a certain place. Otherwise, I want you to make those decisions. I want you to help decide what things are going to go in the classroom, and where they should go. It's different, isn't it? Yeah. Now, I like your suggestions—using the chalkboard, using paper, and using cardboard. Which do you think would be the most helpful for us?

Class: The chalkboard.

Mrs. Mester: You think the chalkboard? What a good observation. I'm going to have to erase some things because looking at this board, I don't have enough room.

Lisa: Don't erase the playground. (Other children also respond.)

Mrs. Mester: Let's try not to erase the board. I can take off the cloth. (A student interjects with, "Whoa!", while others have other excited responses.)

Mrs. Mester: Boys and girls, I can go ahead and erase what we do for the saint of the day, and I can also erase our lunch count. (A student utters, "No," then other students generate many opinions about what to erase, such as the date.)

Mrs. Mester: I will erase the date, too. (The first-graders cheer, "Yeah!" and clap.)

The students and Mrs. Mester then began to brainstorm about what they thought needed to be in the classroom.

Mrs. Mester: Can you think of different things in our classroom that you would like to have up? (The students take a deep breath.)

Mrs. Mester: That you would like to have as part of your classroom? Yes, Billy?

Billy: Those things?

Mrs. Mester: Can you tell me what those are? See if you can think of a name, all right? Karl?

Karl: You, you could put that sign up so, so it can show a lot of words up on those wooden, on those cardboard thingies.

Mrs. Mester: Are you talking about the construction sign?

Karl: Yeah.

Mrs. Mester: Okay. (Mrs. Mester writes Karl's responses on the chalkboard.)

Mrs. Mester: Can you think of anything else that you would like to have in the classroom?

Lisa: Toilet paper? (The students laugh.)

Lisa: Kleenex? (Mrs. Mester writes Lisa's responses on the chalkboard.)

Mrs. Mester: Danny?

Danny: A cat? (The class laughs.)

Mrs. Mester: Are you thinking of cat or cap?

A Student: Cat!

Mrs. Mester: Are you thinking of a cat?

Another Student: A dog!

Mrs. Mester: Are you thinking of a cat or a dog? Are you thinking of a pet, like a classroom pet?

Class: Yeah! A cat! A dog!

The students simultaneously share many ideas aloud with each other. Mrs. Mester then rings a bell to allow the class discussion to continue.

Mrs. Mester: Any other ideas? Yes, Eric?

Eric: We could have a classroom parrot.

Mrs. Mester: So you're thinking of cats, dogs, parrots.... (The students then clap and talk excitedly about the prospects of a pet.)

Mrs. Mester: Oh, I like how Nate has his hand up and is waiting to be called on. Thank you, Nate. What idea do you have? (Nate's response is inaudible.) (Mrs. Mester addresses Nate.): What else do you think we might need in our classroom? Want to think about it? (Nate indicates he would like to think more about his response before answering.)

Mrs. Mester: Okay. Steve?

Steve: A gerbil. (The students laugh—they like his response.)

Ann: A jaguar.

Ben: Jaguar! Jaguar!

Mrs. Mester: You've got some excellent ideas for a classroom pet. Can you think of anything else? (The students talk among themselves about possible classroom pets.)

I then briefly summarized aloud what the students wanted to have in the classroom and guided them in thinking about the things they needed in the classroom that would help them learn. Their responses included student artwork, ribbons, a glass vase, and a cage for the parrots.

After lunch, I answered students' questions about my action research proposal and the activities in which they would be involved throughout the year. Being cautious not to influence the study by telling them its purpose, I revealed the contents of my briefcase (in which they were very interested). I showed the children the folders that held the surveys, word lists, and text passages I gave the previous day and repeated my offer to administer them to anyone else who wanted to answer the questions. Then I commented on how our class would be working together, cooperating in small groups, and collaborating like they did earlier in the day. Finally, I explained that at the end of our project I would look at the videotapes, audiotapes, and paperwork that we completed together and share the information with my advisor and two other people.

As the students pondered this, some of the students shared their thoughts:

Ben: Are we really going to do this?

Mrs. Mester: We are really going to do this. And, Billy?

Billy: Even if it takes 10 minutes?

Mrs. Mester: It's going to take more than 10 minutes. In fact, today, we have probably spent abut 60 minutes on it.

Class: Ah!

Mrs. Mester: If we don't get done today, we will continue tomorrow. We'll get as much done as we can. Karl?

Karl: I'm sure, I'm sure we're not sleeping at home.

The conversation then centered on how to procure the things the children needed to decorate the classroom. They suggested making them, purchasing things at stores and garage sales, and ordering them from catalogs.

Later in the afternoon the first-graders voted on whether to work as a whole class or in small groups when making decisions about the location of objects they felt were needed in the classroom. Their consensus was to decide on each construction site as a class but to have small groups responsible for physically arranging them in the room.

I videotaped both the initial discussion about where to write the students' responses and each of the brainstorming sessions. Examples of some decisions that the children made in the last brainstorming session were how to label the supplies and cubbies, where to locate the supplies in the classroom and the ownership of the individual cubbies, which posters and decorations to use for the walls and bulletin boards, and the position and makeup of the calendar components. I had resources, which either the school or I had purchased commercially, available for the first-graders to select from, such as alphabet sound/spelling cards, calendar components, a number line, figures of community helpers, and jars of insects used for counting from zero to 20. Most of these materials were realistic, such as the portraits of the saints; however, others included anthropomorphized animals, such as those shown on the shape cards. In addition, they had the option of designing and constructing their own materials. During the collaborative brainstorming and construction activities, I collected data through videotapes, audiotapes, photographs, field notes, anecdotal records, and daily journal reflections.

After the room was constructed, I individually administered the second *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) in December 2002 to the experimental group's random sample subjects, while I engaged the other students in independent activities. Over the next few weeks, I individually administered the inventory to any of the students in the class who wanted to be surveyed; however, they were not part of the random sample. I collected and then added the data from the random sample to the aforementioned tables, which reflected the total attitude inventory scores of each item and the total scores of each group of similar items. I stored the tables and the data of both attitude inventories in the same print portfolio.

At the parent-teacher conferences in October 2002 and February 2003, I gave each family of the experimental group a parent version of the *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) to complete at home and return to me in a self-addressed stamped envelope. This measure provided the parents' perceptions of how supported their children felt as members of a community of learners and of their level of participation in classroom decisions. At each of the conferences, I asked the parents to read each of the items to their child, circle the number that they believed reflected their child's level of perception, and then to write under the rating any comments that their child made to them. I also asked the parents to include any of their own thoughts about their child's perceptions about being involved in the study. I collected the data from each inventory and displayed the results in a table; I typed each comment and score under its corresponding item.

I continued the intervention from post-classroom construction through May 2003, observing the participants for evidence of further effects from the creative construction of their classroom, such as a desire to be involved in other classroom management decisions. I collected additional data through videotapes, photographs, field notes, anecdotal records, daily journal reflections, and student monthly journal entries of drawings and writing pieces. To make the coding process easier, I typed the field notes, anecdotal records, and daily reflections in chronological order and placed them in a separate portfolio labeled the "Teacher Reflective Log." I also typed each of the entries from the students' journals. I placed the other collected data (photographs, transcriptions of videotapes, transcriptions of audiotapes, and student journal entries) in chronological order in separate portfolios.

In May, at the end of the intervention, I individually administered the *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) and the *Analytical Reading Inventory* (Woods & Moe, 1999) to the subjects of the experimental group's random sample, while I engaged the other students in independent activities. Again, I offered to individually administer the attitude inventory to the remainder of the class over the next few weeks to show impartiality. However, these students were not interested in being surveyed. I collected the data and added the information to the aforementioned tables. These results reflected the total attitude inventory scores for each item, the total scores for each group of similar items, and the individual scores for each area of the frustration, instructional, and independent reading levels. I then compared the total scores for each item and for each group of similar items across the three sets of the *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997). I also compared the reading levels across the two sets of the *Analytical Reading Inventory* (Woods & Moe, 1999).

I also collected data from the parents of the experimental group through a *Parent Sense of Community Interview* conducted at the conclusion of the intervention to collect their final perceptions of their children's feelings about being members of a community of learners. I typed each comment with its corresponding question to assist in coding.

Data Analysis

The data analysis was inductive, or qualitative. The *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) was scored with a Likert scale, an ordinal scale, thus no means were compared. I collected data from across the random samplings of the attitude inventory in two ways—by comparing the sums of scores for each item and the sums of scores for each group of similar items. Reverse-scoring of some items prevented me from making comparisons across overall sums of total scores of the attitude inventory. In addition, I collected data from the running records, retellings, and comprehension questions of the *Analytical Reading Inventory* (Woods & Moe, 1999) and compared the growth of each subject of the experimental group's random sample in their reading levels (frustration, instructional, and independent).

I used the categories of helping, collaboration, closeness, positive interpersonal relations, and student influence from the *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) to code the data from the student attitude inventories, the parent attitude inventories, the parent interviews, the student journal reflections, and the teacher reflections to indicate the first-graders' change in perceptions about their feelings of community with each other and the influence of the constructivist activities on these beliefs. With the exception of the student attitude inventories, I wrote the initial(s) of the corresponding category at the beginning of each retyped comment or entry. Because the parent attitude inventory was scored with a Likert scale, I collected data in two ways—by comparing the sums of scores for each item and the sums of scores for each group of similar items. Reverse-scoring of some items prevented me from making comparisons across overall sums of total scores of the parent attitude inventory. In addition, I wrote a "+" in front of each positive comment and a "-" in front of each negative comment gathered from the parent attitude inventories and included the score of the corresponding inventory item. Comments that were irrelevant received no mark. I then retyped the student journal reflections and listed them under the corresponding category.

Coding Procedure

As I coded the teacher reflections at least six times, I employed four highlighters to denote each of the categories—pink (helping, collaboration), orange (student influence), yellow (closeness), and green (positive interpersonal relations). Because both the helping and collaboration categories were indicated with a pink highlighter, I also wrote an "H" at the beginning of the comments that denoted signs of helping. In addition to being highlighted, the comments that corresponded to the reverse-scored categories were marked with a check mark at the beginning of the sentence(s). (All five of the positive interpersonal relations items and one of the student influence items were reverse-scored. In other words, the items were written and administered to the subjects using negative rather than positive language. An example was, "My child feels students in his class just look out for themselves" rather than "My child feels students in his class look out for each other." When analyzing the results of the *Sense of Community Attitude Inventory* (Schaps, Lewis, & Watson, 1997) throughout the study, the scores for the reverse-scored items had to be interpreted separately. When I compared the results of reverse-scored items, losses rather than gains indicated growth.)

After the initial coding, I searched through the data a minimum of four times for trends in each category as they related to the research questions. I marked the pertinent data for each trend with a different color highlighter and then retyped an item under the appropriate trend heading. Several pieces of data that did not elicit enough information to form a trend were dropped.

I analyzed the data; interpreted the results for findings, growth, and changes over the course of the study; and suggested implications for practice. In addition, I compared the results of the student post-attitude inventory of the experimental group to the results of the control group. I explored the limitations of the study and ended this section of the report with concluding thoughts relevant to replication of this study.

Results/Findings

Change in Students' Perceptions

From the results of the *Sense of Community Attitude Survey* (Schaps, Lewis, & Watson, 1997), I fully expected the students' initial perceptions as a community of learners to grow positively throughout the treatment since they were so involved in the construction process and to drop off afterward as their level of participation also decreased. However, I was delighted to discover these latter scores were still more positive than those at the beginning of the treatment. In addition, when compared to those of the control group, these final outcomes were also higher (Table 1).

Table 1
Sense of Community Attitude Survey (Student Version)

	Experimental Group			Control Group
Category	Pre-Intervention	Post-Construction	Post-Intervention	Post-Intervention
1. Helping	82%	90%	85%	79%
2. Collaboration	93%	99%	96%	92%
3. Closeness	79%	91%	85%	73%
4. Positive Interpersonal Relations [R]	44%	38%	37%	52%
5. Student Influence	52%	70%	67%	64%
6. Student Influence [R]	76%	64%	58%	84%

The first-graders indicated in the October 2002 parent version of the *Sense of Community Attitude Inventory* (based on Schaps, Lewis, & Watson, 1997) that they received most of their class support by collaborating with their classmates in their learning. Closeness with each other, helping their peers, and student influence in decision making and planning were not far behind. In addition, the children observed their positive interpersonal relations with each other and helping to decide the rules needed to improve (Table 2).

Table 2
Sense of Community Attitude Inventory (Parent Version)

Category	October 2002 (*n* = 15)	February 2003 (*n* = 11)
1. Helping	60%	47%
2. Collaboration	81%	17%
3. Closeness	67%	51%
4. Personal Interpersonal Relations [R]	61%	43%
5. Student Influence	60%	45%

| 6. Student Influence [R] | 56% | 50% |

In the February 2003 parent version of the *Sense of Community Attitude Inventory* (based on Schaps, Lewis, & Watson, 1997), the first-graders believed their positive interpersonal relations were now much stronger than those noted in the October 2002 parent version of the *Sense of Community Attitude Inventory* (based on Schaps, Lewis, & Watson, 1997). They also indicated more participation in deciding rules. Perceptions of helping each other, their influence in decision making and planning, and closeness with their peers decreased somewhat. However, the students' sense of collaboration in their learning declined considerably. With most of the construction process completed a few months earlier, these results were not surprising (see Table 2).

Being close to each other and desiring to have continued influence in decision making and planning emerged more often than collaboration in the second-semester monthly student construction reflections. Interestingly, positive comments about receiving peer support grew considerably in March 2003 and April 2003, then decreased the following month. In addition, the first-graders did not mention helping each other or observing negative relations among their peers (Table 3).

Table 3
Student Construction Reflections

Category	January 2003	February 2003	March 2003-April 2003	May 2003
1. Helping	0%	0%	0%	0%
2. Collaboration	18%	13%	4%	10%
3. Closeness	38%	47%	70%	41%
4. Positive Interpersonal Relations [R]	0%	0%	0%	0%
5. Student Influence	44%	41%	26%	48%

Several interesting patterns in the students' perceptions of how close they felt to each other and in the dynamics of their positive interpersonal relations surfaced in the teacher reflective journal. During the first few days of school, the first-graders were very enthusiastic about constructing their environment, but most of them were also very restless and found it difficult to focus on the task at hand—whether it was the initial discussion involving the entire class or the individual construction groups. However, by the end of the first week, most of the children were very focused while working on their activities, with only a few groups needing additional guidance or direction from the teacher. Another trend in closeness concerned a student who at the beginning of the school year was more withdrawn and passive than the other two boys in his construction group. By early October, he became more vocal about his ideas and followed through on them even though the other two members did not always listen to him. A third trend involved monthly incidents where the first-graders spontaneously exhibited signs of caring for someone else, with October having six cases, the most of any month. The only trend in positive interpersonal relations dealt with making choices; in particular, that the children suggested themselves or a classmate of the same gender as the beneficiary of a class vote.

Influential Constructivist Activities

The *Parent Sense of Community Interview* revealed that the activities that prompted feelings of community were the ones in which the first-graders were involved with others. Examples were decorating the classroom, making decisions, and learning with each other through educational activities such as book buddies, reading to partners, and conducting experiments.

Several trends in student influence emerged in the teacher reflective journal. At the beginning of the school year, the students asked if they could engage in an activity, usually involving the construction of the classroom. As the year progressed, they asked less often, with the first three months showing a decrease in requests by half each month. The second trend dealt with making decisions—as a class, in a construction group, or as an individual. From August 2002 through February 2003, the class usually made a decision about constructing the classroom several times a month, with the highest number shown in September 2002. The construction groups planned and made decisions from August 2002 through October 2002. Roughly half of these occurred in the first two months. Individual decisions were only made in the first semester, with the highest number of incidences in October 2002 and November 2002. Primarily these involved pointing out the preferred location of personal artwork in the classroom (Figure 2). A third trend, voting, occurred most often in the first semester of 2002—particularly in September, October, and November. While most were concerned with the construction of the classroom, some did pertain to classroom management. The final pattern emerged with the classroom pet—a spider that unexpectedly dropped from the classroom ceiling at the end of August. Through October, many authentic opportunities emerged for students to help, collaborate, be close, and have influence with each other as they provided for the spider's upkeep and care.

Figure 2. Photograph illustrating students' room construction efforts. Note the ribbons attached to the tack strip, community helpers displayed next to items that connect to their job description (the policeman by the behavior chart and the firefighter close to the fire evacuation route poster), and student artwork stapled to a bulletin board without background paper.

Reading Achievement

When comparing the results of the August 2002 and May 2003 *Analytical Reading Inventory* (Woods & Moe, 1999), 7 out of 10 students of the random sample from the experimental group showed gains in their reading levels. The largest gains by two of the first-graders were an increase in the instructional reading level from first grade to fifth grade and from frustration at the primer level to instructional at the third grade level. Two other students' reading level increased from frustration at the primer level to instructional at the second-grade level, with one of them gaining a first-grade independent reading level. Three other children's reading levels increased from frustration at the primer level to instructional at the first-grade level. Three other first-graders' frustration reading levels remained at the primer level (Table 4).

Table 4
Analytical Reading Inventory

	Reading Levels					
	August 2002			May 2003		
Subject	Independent	Instructional	Frustration	Independent	Instructional	Frustration
1.			Primer		First	
2.			Primer		Primer	
3.			Primer	First	Second	
4.			Primer		Primer	
5.			Primer		Third	
6.			Primer		Second	
7.			Primer		First	

8.			Primer		Primer	
9.		First			Fifth	
10.			Primer		First	

Implications

It seems clear that actively engaging students with each other in designing and physically constructing their classroom environment during the first semester of the school year built feelings of community, which helped to sustain them emotionally and academically throughout the school year. After getting over the shock of hearing that the classroom was theirs, too, and not just the teacher's, the children quickly adapted and began to crave more ownership of their learning environment—usually to the point where the advantage netted them personal gain, even though they realized that was not fair to others. However, a preference for learning with others rather than by themselves persevered.

Limitations

The study had a few limitations. One was the difficulty level of the student attitude inventory. More time was needed than initially allotted in order to clarify some of the terminology and ensure student understanding of the survey items. Another was the anxiety exhibited by some of the children when they were attempting to read the words in the primer list in the informal reading inventory, thus preventing the subsequent reading of corresponding passages. A third limitation was that the informal reading inventory was administered only to the experimental group. If the control group had also been assessed, more data might have been available to support or refute some of the findings of the study. However, other variables besides teaching style or philosophy might have negatively affected these results, such as student anxiety being further induced through assessments given by an unknown adult in an unfamiliar setting, the disruption of these students' classroom schedule, and the impediment of their curricular instruction.

Acknowledgements

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