

El Secreto de las Niñas

A Story of Two Homeless Girls and Science

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Introduction

Seeing the "Self" Regarding Diversity and Multicultural Education

The National Council for the Social Studies (1992) says, "Multicultural education helps students understand and affirm their community cultures and helps to free them from cultural boundaries, allowing them to create and maintain a civic community that works for the common good" (p. 134). A multicultural curriculum should not be limited to superficial aspects of culture; rather, it should include beliefs, values, ideologies, norms, and codes of interpersonal relationships.

Each preservice teachers' beliefs, knowledge, and attitudes about diversity are firmly grounded in their own personal experiences as well as formal education. This supports the notion that teaching is both a personal and social human activity (Beijaard, Meijer, & Verloop, 2004; Kvernbeek, 2000; Tirri, Husu, & Kansanen, 1999) involving reflection about teaching (Lynn & Smith-Maddox, 2007; Fenstermacher, 1994) and personal beliefs (Pajares, 1992).

Teachers' personal beliefs serve as a framework to understand, interpret, and construct knowledge about teaching and learning. Research (Feiman-Nemser & Remillard, 1996; Putnam & Borko, 2000) shows that preservice teachers' prior beliefs, knowledge, and attitudes should be examined in order to meet the needs of multicultural groups of children. Because their beliefs, knowledge, and attitudes are built by numerous personal experiences, it is meaningful to see the "self" of preservice teachers.

A preservice teacher's prior experiences influence both thoughts and actions

regarding diversity in teaching and learning. Based on their personal experiences within certain sociocultural contexts, preservice teachers acknowledge and create meaning about new multicultural experiences in teaching and learning.

No matter how one looks at it, an analysis of meanings always leads to individual experience and the social process of accommodating the links between words and chunks of that experience until the individual deems they are compatible with the usage and the linguistic and behavioral responses of others. (von Glasersfeld, 1996)

Through case-based pedagogy, this study provides preservice teachers the opportunities to develop a sense of the multicultural context and to acknowledge their knowledge about diversity. This study creates the chances for preservice teachers to share personal backgrounds and experiences with peers to help them develop open-minded attitudes and closely examine their own beliefs about diversity in light of the beliefs of others (Dilg, 2003). Dilg (2003) agrees that for the teacher it is important to "connect their lives with what occurs in the classroom and to take learning from the classroom and apply it to their lives beyond" (p. 191).

This study can contribute to teacher education programs by offering insights for preparing preservice teachers to be both more professional and critical in their practice regarding diversity. This study is an ongoing conversation and reflection about teachers' knowledge, decision-making, and practice in diversity and multicultural education through case-based pedagogy in teaching and learning. Considering that teachers, just as students, are continuously evolving beings, this study is not an endpoint; rather it is situated in the midst of a continuing professional development process.

Case-based Pedagogy

In most teacher education programs,

preservice teachers are expected to acquire knowledge from individual courses, isolated from the classroom context in which the knowledge is to be applied. Furthermore, the lecture/textbook format, through which information is typically "delivered" to the prospective teacher, gives little opportunity for students to engage in dialogue, problem identification, and integration of information from multiple sources. (Goldman, Barron, & Witherspoon, 1991, p. 28)

In order to better prepare preservice teachers for diversity and multicultural education, this research used case-based pedagogy. Case-based pedagogy is an important tool to bridge gaps between abstract educational theories and classroom practices (Harrington & Garrison, 1992; Shulman et al., 2002), to foster teachers' problem solving, decision making, and reflective practices (Dewey, 1904; Koballa & Tippins, 2001; Shulman, 2002).

Case-based pedagogy assumes that knowledge is constructed based on teachers' prior knowledge and experiences. Teachers can develop solutions and reasons for educational problems applying their knowledge and beliefs to specific complex educational settings through the case-based method (Richardson, 1999). Teachers' multiple epistemologies, values, theories, and practices support their diverse voices in problem solving.

Cases provide preservice teachers and teacher educators opportunities to communicate their knowledge, beliefs, and experiences in teaching and learning. When the preservice teachers share educational ideas through cases, they can collect, challenge, and change theoretical and empirical propositional knowledge in teaching and learning (Richardson, 1999).

Description of the Selected Case

In order to examine preservice teachers' beliefs and knowledge about diversity and multicultural education, this research used the case of *El Secreto de las Niñas*.

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This story is written by Cynthia and Jessica, two fourth grade Mexican American girls, together with Angie, an adult White science teacher educator. As elementary students in an urban center in the Southwest, Cynthia and Jessica are surrounded by many peers with life stories like their own. In this open case, Cynthia and Jessica, both children of poor immigrant parents, tell the secret story (with Angie's help) of why they do not like science in school even though their teacher engages the class in many fun, student-centered projects. Cynthia and Jessica's story raises questions about what exactly access to science in school really means, especially for poor, immigrant girls.

The case included reflection and discussion questions to help the preservice teachers' discussion after reading: "What did the girls really mean when they said they are not used to science? What should the teacher have done once the girls disengaged from the project? Doing projects in science class is often difficult because the supplies budget is often small. How should the teacher have handled the situation at the beginning? How should the teacher have handled the situation once the girls decided to go out for recess anyway?" An abstract follows, with the complete case presented in the Appendix.

Research Questions

- ◆ How do preservice teachers' beliefs and knowledge regarding diversity influence their decision-making and reasoning through case-based pedagogy?
- ◆ How is preservice teachers' reflection about sociocultural dilemmas regarding diversity demonstrated through case-based pedagogy?
- ◆ How flexible are preservice teachers in reflection through case-based pedagogy?
- ◆ How do preservice teachers connect theoretical principles in reflection through case-based pedagogy?

Research Method

Research Participants

Three preservice teachers—Katie, Casey, and Susan—participated in this study. They were enrolled in teacher education programs in a large university located in a Southeastern state of the United States. They were females who intended to teach at the Pre-K or elementary level. All three are seniors and each had over 10

weeks of experience in the form of student teaching/classroom practicum/volunteer work in schools or through substitute teaching.

The three were willing to participate in the research procedures, including reflective writing responses, case discussion, and interviews. They showed an expressed interest in developing their knowledge and experiences with respect to diversity in teaching and learning.

Research Procedures

During the undergraduate elementary science course, the three preservice teachers independently read the selected case, *El Secreto de las Niñas*, and reflected on the issues of diversity.

After reading the case they wrote a 1½-2 page, single-spaced, personal reaction. They also responded in writing to the following questions to help their reflection and reexamination on their own inner experiences about diversity as juxtaposed with the related issues of the case: "What do you remember most vividly from the case? Why do you think the teacher in the case made the decision that (s)he did? What do the teacher's practices tell you about his (her) assumptions, values, beliefs, and knowledge about multiculturalism? What are the similarities and differences about the assumptions, values, beliefs, and knowledge regarding diversity between the teacher in the case and you?" Merriam (1998) provides support for the assertion that such "personal documents are a reliable source of data concerning a person's attitudes, beliefs, and view of the world" (p. 16).

In order to share, reflect on, confirm, or disconfirm their beliefs and knowledge about diversity, the preservice teachers discussed the case in the form of a focus group after completing the written personal responses to the case. The focus group discussion was audiotaped and transcribed as soon as possible. Guiding questions at the end of the case served as a semi-structured protocol for the focus group discussion.

During the focus group discussion of the case, I observed each preservice teacher and kept anecdotal notes as each participant looked for information and expressed ideas that reflected their practical knowledge of diversity. These anecdotal notes were utilized later during in-depth interviews in order to get at deeper understandings about the preservice teachers' beliefs, knowledge, and attitudes on diversity.

After the focus group discussion, the preservice teachers responded in writing to one additional question: "What, if anything, has changed after discussing the case in terms of your personal assumptions, values, beliefs, and knowledge about multiculturalism?"

Finally, I conducted a face-to-face interview with each of the preservice teachers focusing on their personal beliefs, knowledge, and attitudes about diversity. The interview sought to identify the preservice teachers' perceptions of any change, and development of their beliefs, knowledge, attitudes, and learning about multicultural education through their experiences with the case-based pedagogy. The interview with each preservice teacher lasted about one to one-and-one-half hours. The interviews were audiotaped and then transcribed.

Data Analysis

The analysis of collected data began immediately with the gathering of written case responses. All data were analyzed to look for patterns, themes, and categories in terms of Kennedy's (1991) categories—flexibility and connectedness. Their stories were also analyzed in relation to perceived meaningfulness through categories of Banks' (1995) dimensions of multicultural education—content integration, knowledge construction, prejudice reduction, equity pedagogy, and empowering school culture and social structure. Themes that emerged from the participants' stories were pieced together to form a comprehensive picture of their collective experience about diversity and multicultural education.

Kennedy used the categories as a guide to look at how teachers apply theory to practice. With respect to the analysis of preservice teachers' 'flexibility,' I concentrated on their ability to identify a number of issues and generate several possible solutions, ideas, decisions, or activities for solving the problems across multiple possible contexts. The 'connectedness' of the preservice teachers' ideas was analyzed by focusing on their ability to make connections between multiple theories, principles or concepts, and the situated problems in the case. Because this study focused on issues of diversity, the quality of 'connectedness' was analyzed in relation to Bank's (1995) dimensions of multicultural education.

I discussed the findings and the interpretation of the data with the preservice teachers in order to confirm and expand

the depth of my understanding regarding their stories on diversity. I continued to think about the various ways of interpretation and meaning-making within the larger research context.

Research Findings

Flexibility of Identifying Multiple Issues

Teachers need to be aware of and sensitive to children's personal backgrounds. As early childhood educators, Katie and Susan recognize their lack of awareness concerning issues of homeless children in the classroom through this case. "I used to be completely unaware of homelessness. I will be more empathetic towards homeless children in my classroom." Casey is also challenged in this case to think about how she will create accommodations for all of the children's home lives. "I think that the classroom teacher was perhaps naive about the fact that some of the children at the local homeless shelter attended her school and perhaps naive that there even was a homeless shelter."

Susan feels that oftentimes teachers take for granted the access children have to school materials and resources. Describing the difficulty of getting materials for a science class, Susan considers the homeless children in the case. "Something as simple as bringing in a shoebox to make a camera could seem like bringing in a digital camera to a homeless child." At this point, Katie indicates that the teacher in the case should be aware of children's personal situations and culture. Katie thinks that the teacher should consider in advance the possibility that children might not bring materials for the class project. She emphasizes the belief that it is not always right to place the blame on children when they cannot bring materials for the class.

Teachers need to empathize with children's emotions and consider their personal backgrounds. Casey and Susan mention that the two homeless girls were worried that they would be in trouble because they did not have a shoebox. Empathizing with the girls' concern for how they would locate a shoebox for the class science project, they believe that the classroom teacher should have anticipated the stress of this situation on young children.

Cynthia and Jessica were looking forward to their unit on movie making, until their teacher asked them to bring in shoeboxes to make movie cameras. The homeless girls knew they would not be able to get mom

or a sibling to drive them to a shoe store, where they can get one for free; nor could they bring in fifty cents to buy one.

Teachers need to consider the importance of individual situations in deciding problem-solving approaches. The classroom teacher in the study tells the children that they "are getting older and need to become more responsible for their education." Katie, Casey, and Susan point out that the dilemma is not related to helping children develop responsibility for their own learning. They state that the classroom teacher tried to instill work ethics and values by having the girls earn shoeboxes by cleaning erasers or by being charged 50 cents for the supplies she requires for a project. They reflect on the insensitivity of the teacher in preaching work ethics before inquiring as to why the children did not have shoe boxes.

"The classroom teacher asked them to stay in for recess and clean the erasers to earn the boxes. This sounds like a good way for the children to earn boxes, but I feel that the two girls like they were being punished for being poor." Casey indicates it is "a view that the homeless are lazy and want things given to them with no work." She challenges these stereotypic thoughts and describes how easy it is to suddenly lose everything and be in a homeless shelter.

I have volunteered at soup kitchens before and heard the stories of "how people have lost everything." They had great jobs with the stock market and suddenly lost everything. They were everyday hardworking people, who became homeless before they even knew it. They may have made bad decisions and [had] bad luck.

Teachers need to consider the importance of non-prejudicial attitudes about children from different backgrounds. Casey focuses on the classroom teacher's thoughts in telling the girls the eraser cleaning should be 'their secret.' She feels that the teacher did not intentionally mean to cause any harm. Considering the perspectives of both the classroom teacher and children in the case, Casey contrasts the views of the teacher with those of the two homeless girls with respect to their feelings about cleaning the erasers.

The teacher thought this was a good idea in order to spare the child's feelings and not let the other children know. If the other children were to find out that these two girls lived in a homeless shelter, then it is very possible that their peers would ridicule them. The two girls, however, possibly felt that the teacher was imply-

ing that their living in a homeless shelter was something they should have been ashamed of.

Casey extends the issues of this case to poverty issues beyond the specific case situation. She remembers children whom she met in her student internship and who were on a reduced lunch program.

We have a child whose mother is pregnant, and she's in bed for rest right now and she had to quit her job. The child is on reduced lunch, it's not free lunch and she hasn't been able to pay for the lunch. I'm probably going to pay for it because otherwise they'll starve because they can charge up to a certain number like that haven't paid and after that they give them like peanut butter and jelly every day from then on. I remember that children in the 5th grade, everybody knew if you got peanut butter and jelly it was because you weren't paying for your lunches, and that was really hard for the children to have to deal with.

Teachers need to consider the difficult situations of children's parents. Katie considers the fact that the children's parents may have difficulties related to language communication. Katie suggests that parents may be afraid to go somewhere and get the shoeboxes for the movie making unit because of difficulty with communication. Katie feels that she will actively address these kinds of situations as a teacher in the future. This case also links back to her experiences with ESL children at schools:

I know in my classes we have similar situations with parents not speaking English. I'm sure we'll run into in the future and need to think of that maybe the parents might either not get the message if we sent home a note instead of telling the children to tell the parents which then also the children will probably forget also but maybe they might get the message and then they won't be able to carry it out because of the block of the language.

Flexibility of Problem-Solving

Teachers need to provide children and their parents enough advance time to prepare for school tasks. Katie generates possible solutions for the case dilemma based on her belief that teachers should be aware of children's individual situations and that no one should be offended in the classroom setting. Katie suggests that more time is needed for children and parents to prepare the materials for the project.

Teachers need to keep the communication lines open with children. Casey

criticizes the classroom teacher's attitudes about homeless children in the case, pointing out that she assumed that the children were wrong when they did not bring shoeboxes. Furthermore, Casey notes that the classroom teacher simply ignored the children when they did not come to clean the erasers. Casey argues that teachers need to develop more awareness of children's home situations. More specifically, Casey believes that the teacher should talk to the children about the issue—their reasons for not bringing shoeboxes and their reactions to cleaning the erasers.

When that came up, then I would want to sit down and talk with the children about what's going on. I would think obviously something had happened there and want to know what caused them to be upset and not want to come, and just being more aware of when those potential situations arise.

Teachers need to prepare extra materials and distribute them randomly for the lesson. With the basic assumptions and belief that she would not criticize the girls for their 'lack of responsibility,' Katie and Casey suggest that the classroom teacher should assume some responsibility to visit stores to collect shoeboxes. They feel that the teacher could ask other teachers for extra supplies or that the teacher could make a trip to obtain supplies. They suggest a way to prevent children from feeling offended in the class on the basis of their individual situations.

She could ask the children to put all the shoes boxes in the back of the room. When it was time to hand out the boxes, she could just randomly hand out the boxes, that way it was no big deal about who got what box.

Casey's mentor teacher and Susan indicate it is good planning to bring in enough shoeboxes because many children forget to bring things to school. "Their parents may have busy lives and it's not that they don't care, it's not that they don't want their child to participate; things just happen and they forget or they're actually unable to get one." Feeling the need for teachers to prepare adequate materials for class activities, Susan also remembers the advice of a mentor teacher during her internship experience.

We as teachers should see that something simple like crayons and glue was a problem for one of my kindergarten children. We need to make sure we are able to provide materials for children who do not have access to them. After all, we

cannot deny children the right to attend a field trip if they don't pay. Similarly we cannot deny them supplies they will need for projects.

The excerpts of both mentor teachers illustrate how cases can provide teachers with the opportunities to conference or mentor about teaching and learning.

Teachers need to take into account the possibility of children's embarrassed feelings. As well as preparing extra and free materials for classroom projects, Susan thinks that the classroom teacher should have cared more about the homeless children's feelings. Assuming that it is important not to offend or hurt children's feelings, she sees the need for the classroom teacher to help the homeless children rather than simply have them earn the shoeboxes. Susan criticizes the classroom teacher's problem solving approach by putting herself in the role of the classroom teacher.

I would have talked to Cynthia and Jessica once they decided not to stay in for recess and clean the erasers. It is obvious that the girls were making a conscious decision to not take part in the project. Since it was similarly obvious that they wanted to create the cameras when they approached the teacher, I would have been alarmed by their decisions to go out instead of earn their shoeboxes. They were no longer enthusiastic and engaged in the activity because of the way the teacher handled their situation.

Connectedness of Theoretical Principles

Teachers need to practice equity pedagogy. Equity pedagogy recognizes the importance of awareness and sensitivity to children's personal background in creating a more equal learning environment. Casey believes that teachers have to consider each child's personal background in teaching and learning and that they should be aware of children's specific situations. She believes that an awareness of and sensitivity to each child should influence the creation of more equal learning environments for children, regardless of their personal background.

If there were two children in just one class that were in the shelter, there were bound to be more in the school. It's the teacher's responsibility to be aware of the potential situations that her children could be in.

She feels unequal learning opportunities for children should not stem from situations where homeless children are not able to bring materials for a classroom project. Casey uses an example of her

internship school to illustrate how schools could respect and support each child's sociocultural background.

Like having a supply closet for children who needed certain supplies....Our school has a clothes closet for children who need clothes to come and look and get them, then other children come and leave clothes, and that kind of thing.

Based on the above thoughts, Katie emphasizes the importance of well-planned lessons considering all children's personal situations. Katie argues that children should have equal educational opportunities regardless of their socioeconomic status. From Katie's perspective, it is not fair if homeless children do not get the same opportunities to participate in classroom projects and to improve their academic achievement. In order to increase the academic achievement of children from all backgrounds, Katie suggests the need for well-planned lessons that take into account the situations of all children in the class and school:

The teacher should increase the academic support for the minority children. They're obviously not going to get anything if they don't have the resources. The teacher needs to find ways of setting up the lessons so that the lessons are beneficial and that they do get something out of the lesson.

In relation to the teaching strategies for individual children, Susan focuses on the importance of modifying the teaching approach to increase diverse children's academic achievement. Susan declares that children should have equal opportunities for education and academic achievement regardless of their personal background and situation, including socioeconomic status. "They didn't flat out say, we're homeless, and we can't afford it. Being homeless was their secret." In particular, lack of money on the part of homeless children should not restrict their learning opportunities.

Considering that children's interest and motivation are important for their learning, Susan feels that the classroom teacher's problem solving approach, particularly the idea of cleaning erasers to earn shoeboxes, is a form of punishment. Susan feels that it is not fair for the homeless children in this case to miss the recess time and the learning activity because they cannot bring in shoeboxes or money to earn a box.

Therefore, Susan feels that if there are children who cannot get supplies, the classroom teacher or the school needs to provide those supplies in order to ensure that all

children have equal educational opportunities. This point seems to correspond with Susan's belief that teachers should modify their teaching approach in order to promote the academic achievement of children from diverse sociocultural backgrounds.

Implications

The three preservice teachers raised multiple issues selectively about the diversity case. Their issues included the evaluation of the classroom teacher in the case—positive aspects and critiques, interest to learn, awareness of and empathy with the case situations, and conflicts concerning the dilemmas represented in the cases. Across all data sources, the preservice teachers revealed their own practical knowledge related to the case situations around three main themes: "Flexibility," "Connectedness of Theoretical Principles," and "Case-based Pedagogy."

Flexibility

The preservice teachers' flexibility of identifying multiple issues and problem-solving about diversity is influenced greatly by their personal experiences, such as study abroad in Italy and their parents' education, as well as personal thoughts about diversity. Casey and Susan perceive that their parents' open-minded attitudes toward other cultures and education help them see multiple sides of a phenomenon by taking on a devil's advocate role which is influenced by worldview, sensitivity, beliefs, and attitudes about diversity.

In addition, Casey's experience with her mentor teachers during her student internship period impacted her beliefs on teaching and learning regarding diversity. She does not think all the teachers she encountered were good role models of cross-cultural understanding. Nor does she simply replicate effective teachers' approaches with diversity in teaching and learning. Whether her mentor teachers are perceived as effective or ineffective, Casey has filtered her observations and experiences with these teachers through her existing practical knowledge about teaching and learning regarding diversity. She constructs her desirable figure of a teacher with reference to her own sociocultural context. Casey's perception about diversity is an example of "the construction of knowledge, knowing, beliefs, and meaning within the minds of individuals and within social communities" (Richardson, 1999, p. 146).

At this point, Kate points out the influence of her teacher education program on her beliefs, knowledge, and attitudes about diversity. Kate characterizes the challenge as the need to investigate her own opinions and construct her own meanings about diversity based on the learning from her teacher education program. "We've all been processed through this program. We know what the right thing and what the wrong thing to say is because we've been trained through this program to know exactly what to say. But I think we might have had different personal opinions about stuff and maybe [we] held back."

Connectedness of Theoretical Principles

Being aware of and being sensitive to other cultures is a main theme relative to the preservice teachers' case reactions. They believe that children's cultures and beliefs should be respected. At the same time, they believe that teachers need to provide children with the opportunities to develop diverse knowledge, beliefs, and experiences about other cultures in order for them to have an open-minded attitude toward diversity and multicultural education.

Their experiences about diversity with the case raise several questions and challenges for teachers faced with increasingly diverse classrooms. How much should teachers know about children's personal background, including their beliefs and values, to be a culturally sensitive teacher? What issues should or should not be dealt with in classrooms in terms of sensitivity? Is it children's responsibility to construct their own personal beliefs by filtering new and diverse experiences in juxtaposition with their existing beliefs? Stating that as a teacher they will build their future classrooms around the unique characteristics of children, these preservice teachers believe it will help children avoid being hidden or silenced by 'the norms' and stereotyped labels.

According to Sleeter and Grant (1991), children are "becoming disabled and silenced within a public institution, interpreting school knowledge as a series of tasks to complete for authority figures rather than as an instrument for advancing their own interests" (p. 53). Without understanding children's culture, school experiences for children cannot be meaningful and productive. These preservice teachers emphasize the need for teachers to take into account, accept, respect, and celebrate diverse knowledge,

situations, beliefs, and shared meanings of children at a school.

Before experiencing this case, Casey considered diversity and multicultural education solely in terms of racial issues. However, after the experience with this case, Casey states,

Diversity is the amount of different cultures. Diversity in the classroom could be the amount of different races, the amount of different cultures, and the amount of different family backgrounds. Multicultural education I think is more educating in a way that is not only sensitive to other cultures, but also gives some insight and information about different cultures, particularly of the children in the classroom.

Her comments throughout the study illustrate the way in which her ideas about diversity broadened as she participated in case-based experiences. This does not imply a cause-effect scenario; rather, this is to suggest that the case experiences provided her with a valuable opportunity to reflect on and critique her own beliefs and those of others. She does not think diversity and multicultural education should be dichotomized as an issue of Caucasian and African-American education. Rather than polarizing the issue of diversity, she believes it is better to deliberate on the various issues of diversity including race, family background, and numerous other aspects of culture. Even though people seem to be "in a culture," she thinks that their subcultures should be regarded as equally important in the educational process. She also feels that it is important to understand other cultures. Without understanding the appropriate information about other cultures and people from those cultures, Casey thinks that people will continue to view others as strangers who are not likely to be their friends.

"Everyone is different. All children should be treated in their own ways." The preservice teachers challenge the meaning of equality and equity. Facing difficulties in terms of handling children's differences in the same manner with respect to personal, socioeconomic, and cultural issues, the preservice teachers feel a strong need to address children's unique, idiosyncratic diversity in their beliefs, attitudes, knowledge, curriculum, and school environment. Utilizing Banks' (1995) dimensions of "equity pedagogy," this study suggests that equity for all children should be constructed on the basis of their personal cultural backgrounds. Having said this, the need for teachers to modify their teaching on

the basis of individual children's personal situations is an essential requisite for improving academic achievement. What was learned about equity pedagogy in this study points to the need for teachers with the ability to develop culturally sensitive teaching methods that promote equity.

Case-based Pedagogy

Case-based pedagogy helped the three preservice teachers capture particular phenomena in diversity and multicultural education as their own experience. 'Experience' does not mean all the events or moments that people meet in a daily life. Experience is a subjective and linguistic event that makes visible the past events by conscious observation and reflection (Scott, 1992).

Through the case experience, including reading, writing, and discussing, these preservice teachers show that they recognize their own assumptions and beliefs about diversity, comparing similarities and differences among the teacher in the case, peers, and themselves. In the process, they generalize, confirm, or challenge their own feelings, opinions, and personal theory about diversity in teaching and learning by reflecting on the case in relation to their own personal experiences.

In her reaction to the post case discussion question, Casey responds in this manner: "My peers and I had pretty much the same opinion on the case discussed..." Like Katie and Susan, Casey also tries to show an agreement with her peers. It is shown that they are reinforced to confirm their beliefs and socially construct their meanings about diversity by discussing cases and cooperatively learning about multicultures. According to Moll (1990), Vygotskian social constructivism posits "a strong, dialectic connection between external social practical activity mediated by cultural tools, such as speech and writing, and individuals' intellectual activity" (p. 12).

Personal reaction, case reaction questions, case discussion, and reaction to the post case discussion question helped the preservice teachers reflect in depth on the issues embedded in each case. Responding to questions about the case and discussing the case dilemmas, they had multiple chances to examine and reflect on their beliefs about diversity. Through the combination of processes involved in case-based pedagogy, they learned about the case issues, other cultures, and their own personal beliefs.

Susan states, "This type of learning

using cases influenced me to go out and learn more about multicultural education. The case-based pedagogy really made a big difference. I think it's a really good procedure for learning through other people's experiences." According to Susan, the case-based pedagogy encourages her toward active and real learning rather than passive memorization of pre-packaged concepts and knowledge from textbooks only. To actually "put yourself in the person's shoes."

During this study, the preservice teachers had opportunities to think about their own teaching as a future teacher and to consider the similarities and differences between themselves and the teachers in cases. They felt this was more important than simply incorporating the thoughts and ideas of others. It helped them learn to understand others rather than simply critique them.

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Appendix: The Case of *El Secreto de las Niñas*

My name is Cynthia, and I am nine years old. I am in the fourth grade. I have lived with my family in Austin, Texas, for five years. Before moving to Austin, I lived in Mexico. Most of my family still lives in Mexico, but some of my family lives here in Texas with me. Right now, my family lives in a homeless shelter. We have lived here for one year. Although I have lots of friends to play with here, I don't like living here when it gets dark outside. It is not safe. I also do not like it when boys think they are better than me or when they think I cannot do all of the same things as them!

My name is Jessica, and I am eight years old. Cynthia is my best friend. I also go to school in Austin, Texas. My parents are originally from Mexico, but from a different part of Mexico than Cynthia's family. I live in the same homeless shelter as Cynthia. Our families moved into the shelter at about the same time. I really like spending time over at my friends' places, but I don't like it when people fight, especially when people fight in my face! I also don't like it when boys try to show me up. I can run as fast as any of the boys around here! I also don't like going outside at night because it is not safe around here!

My name is Angie and I am a science teacher educator in the same city where Cynthia and Jessica live. I have known Jessica and Cynthia since the beginning of the school year (it is now December) because I teach and do research at the shelter where they live. We came to write this story together because these two girls were always particularly active and interested in our after-school science program, and I was interested to learn more about why. Well, I certainly got more than I bargained for when the direction of our writing was not about why they liked science but why they did not like science!

We want to tell about learning science in school. Actually, when Angie asked us to write this story with her, we did not want to do it at first because it was about science in our school. The truth is, we really do not like science. Our favorite subjects are math and reading.

We called our story *El Secreto de las Niñas* because the reason we do not like science is that we are not used to science! Sometimes when we complain about science in school, people think we don't like it because we are girls, and that is not true. They tell us we can be anything we want to be. We know that, sort of. We are just as good as boys, we just don't want to explain our reasons. It is our secret.

I told the girls that I thought their secret was interesting but that I was not sure exactly what they meant. What did it mean to be used to something, anyway? Did it mean that their schoolteacher never teaches science at all, and so they were not used to having science class at all? Did it mean that their teacher did teach science but the girls were not used to the topics, the content, or the pedagogical methods the teacher used to teach science? Finally, I wondered, did it mean that they were not used to the language or the skills the teacher required them to use? I asked the girls to explain their secret to me.

Okay. Let us tell you a story about what happened in school to show you what we mean.

Our teacher told us we were going to start a unit on movie making. We both thought this would be really cool because we love to go see the movies! One of the first activities we were going to do was make a shoebox camera. We would make this camera out of a shoebox, and it would take real pictures. And then we would be able to keep the camera and take whatever pictures we wanted! At the beginning, we were really excited about this project because neither of us has ever owned a camera before. We remember only one time when we were able to use a disposable camera because Cynthia's mother bought her one from the store for her birthday.

The day before we were to start the camera project, our teacher asked each student to bring in an empty shoebox. Well, where are we going to get empty shoeboxes? I told my teacher I didn't have an empty shoebox, so then she said to the whole class, "If you don't have a shoebox, you can ask your mother or an older brother or sister to take you to a discount shoe store and ask for a shoebox. They will give you one for free." Then she said, "For those of you who cannot get your own shoebox, you can bring in fifty cents and buy one from me." She then told us that we are getting older now, and we have to learn to become more responsible for our own education. Well, we are still like, where are we going to get a shoebox? My mother cannot take me to the shoe store! She doesn't even have a car, and she cannot speak English that well, and she has to watch my baby brother. And then we are also like, where are we going to get the fifty cents? So the next day we went to school without our shoeboxes and without fifty cents.

Your story so far reminds me of how easy it is to link what children are able to bring to school with them (whether it be cultural capital, material items, or feelings of power or belonging) to their "success" in science class. In other words, it seems that your teacher is trying your own ability to succeed in her class (or at least to develop positive

The Case of *El Secreto de las Niñas*

(continued)

feelings of belonging in science) to the kinds of things you might have access to at home. Did she understand how your situations at home affected how you might be able to participate in school science? What happened next?

Well, at the beginning of the day, the teacher collected the shoeboxes. A couple of other students in the class did not have shoeboxes or money either. Our teacher gave the class a lecture about being responsible. So we told her in private right before recess that our mothers could not take us to the store and we did not have any money, and that is why we did not have a shoebox. She asked us why we didn't tell her earlier. She also told us it was okay and that she understood. She told us we could help clean the erasers during recess to "earn" the shoebox and that it would be "our secret." Well, we both decided to go to recess because we were mad at her, and we didn't want to share a secret with her. When it came time for science, our teacher said nothing to us but gave us shoeboxes anyway so we could make our camera. But we were the last ones to get shoeboxes, and they were ugly. By that time, we did not want to make cameras anymore, and we just sat there and poked at our boxes.