Jessica Clark

Celebration of Learning 2010

Kindergarten “Number Sense” Project
As I reflect back upon the many struggles and accomplishments I experienced with students throughout the Number Sense Project, there is one student, Alice, who particularly stands out. My first encounter with Alice was not when the Number Sense Project began in early November, however, but in early September through my Ed 364 Math Methods class. For Math Methods, the Augustana prospective teachers paired up and were assigned to work with three kindergarten students. Before meeting the students, we had been directed to watch a video and assess our students’ ability to count a pile of objects, count out a particular quantity, and add and take away one in a sequence and out of sequence utilizing the Kathy Richardson’s Assessment. It was through this assessment and the *Number Sense Matrix* that I was able to conclude that Alice had mastered up to the second learning goal in the Pre-K age target. Specifically, Alice accurately counted out a collection of 12 disorganized objects, and she remembered that there were 12 objects in her collection without having to count them again.

In addition to assessing Alice’s basic understanding of math, the video gave me an initial impression of Alice’s mannerisms. From the very beginning of the video, it was apparent that Alice was an active student who constantly needed to move. Therefore, my partner and I decided we would begin each session with a series of stretches, to not only meet Alice’s kinesthetic needs, but to further the kindergarteners’ understanding of how to count forward and backwards. It was not until working with her a few times, however, that I truly understood how much Alice really did move and struggled focusing on a single activity for an extended period of time. I remember discussing with my Augustana partner that I felt it was nearly impossible to keep her engaged, even if it was a very
kinesthetic activity. For example, my Augustana partner and I created a number line on
the floor so that our students would be able to walk up and down the number line
practicing the one more/one less concept. In response to Alice’s very active nature, we
allowed Alice to work on her own individual number line. When working with her,
however, it did not matter if I had her walk, jump, or skip up and down the number line,
Alice had a hard time maintaining her focus on the activity for more than a few seconds.
Indeed, sometimes Alice seemed unable to focus long enough to follow the directions we
provided.

After creating multiple kinesthetic activities to try and meet Alice’s needs, my
Augustana math partner and I realized that in a large classroom, a teacher would not be
able to give students like Alice the amount of time and attention we were giving her.
Therefore, we decided to take a firmer approach. Before each activity, we would explain
to Alice what was expected of her, and if she did not follow directions or engage in the
different activities, she would have to sit by herself while the rest of the group took part
in the different math games. Although we still struggled keeping Alice completely
engaged throughout an entire activity, I noticed that her focus on our tasks during the last
few Ed 364 math sessions dramatically improved. In fact, when assessing Alice’s
understanding of the different mathematic concepts at the end of Ed 364, I concluded that
Alice not only mastered cardinality but was much more consistent in her ability to count
forwards and backwards.

When Ed 364 was finished, there was about a week and a half break until the
Number Sense Project began. As I reflected back upon Alice’s records at the beginning
of the project, it was disappointing to see that her teacher noted Alice did not master
cardinality. When Colleen, another Number Sense math teacher, assessed Alice in mid-January through the Counting Buttons Activity, however, Alice was able to demonstrate her understanding of cardinality once again. In this activity the students were directed to count out a specific number of buttons to match numbers 11-20. When completing this activity, Alice was able to prove her understanding of cardinality by answering, “How many buttons are there?” after just counting them, and she also demonstrated her ability to count out the correct number of objects multiple times, unlike what was shown during the Ed 364 assessment video. Similarly, Alice also demonstrated her ability to count forwards and backwards from ten, which was also one of our main focuses during the Ed 364 sessions.

In early December, Alice was introduced to the game POP. For this game, the students reach into a “popcorn bucket” and pull out a piece of “popcorn.” The pieces of popcorn have either a number ranging from 1-50, or say POP on them. The game’s objective is not only to assess number recognition as the students pull out a piece of popcorn with a number on it, but their ability to organize numbers from smallest to largest when they choose a POP piece of popcorn. During this activity, Alice struggled recognizing the majority of the higher numbers, as well as sorting her numbers in order. As time passed, however, Alice’s understanding of number recognition improved, while her ability to put numbers in order stayed about the same.

I believe the reason Alice’s recognition of higher numbers improved was due to the continuous small group/one-on-one attention she received, as well as the One Hundreds Chart activity. The one hundred chart given to Alice was a table that listed numbers 1-100 in rows of ten. This allowed Alice to not only see the numbers as she
counted, but recognize that the tens spot would change at the beginning of each row, making it easier to distinguish. In short, Alice demonstrated, utilizing the one hundreds chart, that she could recognize all of the numbers from 1-100 by early April. On the other hand, for Alice to accomplish putting numbers in order, she needed to understand which numbers were greater than/less than other numbers.

In late January, Alice took part in playing Penny Store Sort. For this game, the students are given a chart that has More Than, Equal To, and Less Than, and multiple food items with prices on them. Although Alice was able to read the different prices on the food, she did not understand the more than, equal to, and less than symbols or concepts. In contrast, I believe Alice somewhat demonstrated her understanding of less than and greater than during the Line ‘Em Up computer game she played in mid-April.

Line ‘Em Up is a computer game designed to help students place random numbers in their correct spots on a number line. When you first open up the game, the students are presented with a number line from 1-20. After clicking on the “Line ‘Em Up” button, the numbers will disappear and about four to five random numbers will reappear. The students will then begin placing the random number shown at the bottom of the screen in its correct spot on the number line.

When Alice began playing this game, I would ask her if she thought the random number shown began at the beginning, middle, or end of the number line. It was through her answers that I was able to conclude that she understood which numbers are less than or greater than other numbers. She would explain that she knew a 14 went after a ten but before a 15. As I reflect back upon the POP game she played before, I believe the reason she had a hard time putting her numbers in order was for multiple simple reasons. In the
computer game, Alice was given a number line, where each spot represented a specific number, whereas POP did not present Alice with any sort of number line or chart. Therefore, Alice was unsure of where to place her numbers because there was no chart or a specific spot that represented the numbers she was working with. In addition, Alice also played POP during the beginning of the project when she struggled recognizing higher numbers. Therefore, how could she have placed numbers in order if she couldn’t even recognize higher numbers, or what numbers came after X9, (59-60, 69-70, 79-80, 89-90)?

Another activity Alice was able to partially demonstrate her understanding of more than and less than through was the Domino Sort Activity. Although Domino Sort’s main objective is to help students recognize patterns, Alice was able to demonstrate her understanding of the concepts above through her different responses throughout the game. When playing the game, the students were not only asked to recognize the different patterns on each side of the domino, but add the number of dots on each side and place them on a number line. As she examined the different dominoes, she indicated several times that she knew a specific domino should be placed before or after another domino just by glancing at the number of dots. From this, I was able to conclude that Alice understood more than and less than through her observations of objects, but not necessarily through looking at written or numerical numbers.

The Domino Sort game also allowed me to assess Alice’s understanding of patterns. Before she was introduced to this game in early February, however, Alice’s comprehension of patterns was assessed through the Pattern Set computer game in mid-January. When beginning the game, the students are shown a pattern of dots, which are then covered up. The students’ objective is to recognize the pattern without having to
count each individual dot shown. Alice’s records show that she was only able to recognize patterns with two or three dots and constantly thought there were six dots, when only five dots were shown. My records of Alice in early February playing Domino Sort also show that she could only recognize patterns up to four dots but had to count each individual dot above that.

As I reflect upon and compare my experiences with Alice during my Ed 364 class and Number Sense Project, I can recall many mathematical struggles she has overcome. When I first began working with Alice during Ed 364, she could barely count to 15. However, through the work she has done through the Number Sense Project, she was able to count all the way to 60 with no help. On the other hand, one of the greatest accomplishments I believe Alice has achieved is her increased ability to focus on learning tasks. Although she is still very easily distracted, I feel that her need to constantly move has decreased. In addition, her movements during activities are directed towards the activity rather than around the room, or working area, unlike her movements during Ed 364. For example, when working on the computer, although she is constantly squirming in the chair, she is still able to focus most of her energy on what she needs to do and utilizes the mouse to answer the different questions or move objects around the screen.

Despite her progression, Alice’s teacher had to place her at her own table so that she would not distract the people around her. Although I did not necessarily agree with this decision at first, I realized how sitting at her own table not only helped the students around her, but helped Alice stay more engaged as well. Plus, Alice’s teacher made sure that Alice still felt a part of the class and was allowed to move to her original assigned seat to participate in group activities.
As I reflect upon my time with Alice, I can’t help but recognize how much she has helped me grow as a potential teacher and student. Working with her not only taught me different strategies to address students’ movement needs, but the importance of being patient and maintaining a positive attitude and perception of every student. Moreover, I believe this experience has taught me the importance of assessing and recording data accordingly and collaborating with others. I do not believe Alice, or any of my other Number Sense students I worked with, would have achieved as much as they did if it was not for the constant assessment and collaboration that occurred with the other members of this project. It is my hope that I take what I have learned through this experience and apply it to my future lessons and classroom to address and meet all of my students’ educational and behavioral needs and to create a positive learning environment.