

Math and Movement
UPK Study
Emily Howland Elementary
May 3rd – June 17, 2010

Observation Report
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Introduction: The Math and Movement program makes math fun, concrete and provides motivation and health benefits all while being a simplistic and flexible method of teaching math skills and concepts. This is what excited me about the program from the moment I observed Suzy Koontz work with a neighboring Kindergarten class in the fall of 2009. I immediately wanted to take the program she had created and our school adopted, adapt it and make it work for UPK students. I saw the potential of the program and it seemed to be a perfect fit for the high energy, and constantly moving students of my class. I just didn't know exactly how to adapt the program and make it work. I needed some support and guidance.

In the spring of 2010, when Suzy came to me wanting to do a study of the effectiveness of Math and Movement with UPK students, I saw this as a great opportunity to end the school year with some excitement and set new expectations for my students that would drive the class motivation through the end of the school year. On May 3rd we did a pretest and the study was off and running. Over the next 7 weeks our UPK class used the program adapted to meet the needs of the students. During this time we added some literacy concepts and introduced a 4th grade buddy system. The results of the June 17th post test showed that the children made tremendous progress in all areas of math, literacy, and even in their academic motivation. This paper is a reflection of my experiences and observations during this short period of time. It has proved to be a positive and effective learning experience for me, the UPK students, other students in the school and even the community at large.

Program Implementation: When I sat down with Suzy to discuss how to implement the Math and Movement program with my UPK students I was both excited and apprehensive. I had worked with these students for $\frac{3}{4}$ of the year and had created expectations for my kids. I asked myself I could expect these students to try a new approach to learning at this stage in the year and would they be motivated to do it and would they be capable as well. I remembered a philosophy I decided I would live by as a teacher; students will rise to your expectations and are capable of more than we might think they are. So I decided I had nothing to lose and that the students had everything to gain from this experience.

Pre Test- On May 3rd, 7 people composed of me, Suzy, two classroom aides and three substitutes spent 2 hours testing kids to determine their prior knowledge before we implemented the program. The children were asked question dealing with number sense, mathematical concepts, literacy sense and concepts and various other school age questions as well. (Please see the Pre-test for more details). The results of this test were to be used to compare to the post test given at the end of the 7 week program.

Movements and Counting- The program implemented the whisper counting exercises modified to meet the needs and abilities of the students. In general any basic repetitive movement was used to help the kids count to 20, 30, 100 and by 10's. Some the movements included jumping, clapping, arm crossing moving, movements that mimicked animals such as dogs, cats, frogs, unicorns. I gave the students the freedom to choose movements that appealed to them. I modified their suggestions when necessary to allow for simplicity for all the children.

The exercises were purposefully done after lunch each day due to the amount of energy they had after lunch along with the increased lack of self-control. The idea was for the students to use this increased energy in a constructive way and help them become aware of their body and increase their mental and physical self-control that seemed to have been lost during the 30 minute lunch period. The exercises were done anywhere from 5 to 10 minutes depending on student interest. To end the exercise, I would do some exercises with the children sitting down. And using just hand and arm movements as a way to calm the children down and prepare for the next activity.

In the first few weeks of the study, only a small handful (5 of 18) of the students participated enthusiastically. Many students did not show much interest. An extrinsic reward (stickers) was offered to the students to try and increase participation. As the weeks went on the participation of the students steadily increased. As I started allowing the students to pick and choose the movements if they participated, more students joined as well. In the end approximately 15 of 18 students participated on a daily basis. The

Math and Literacy Mats- The mats were one of the highlight of the program for the UPK students. The mats allowed the students to use movement, make verbal responses and were visually stimulated. In order to allow for more direction instruction, observation and encouragement I divided the students in to groups of 4 to 5 students. Each day of the week I would work with one group for 15 to 20 minutes on the mats. We mainly focused on counting to twenty, letters, colors, and one sight word mat. I would allow the children to explore the mats freely while I worked with one student at a time on a particular mat to help, observe and provide encouragement. I also had students work in teams of two or three to help each other on the mats and work together. They loved this. This time each day was a great opportunity for the students because it was a slightly unstructured learning experience which allowed them to be free, interact socially, and move about as they pleased. The children always participated very willingly. There favorite mats were the alphabet mat and color mat. Some students enjoyed the site words mat and became very successful at sight work recognition. Others became fond of the clock mat and enjoyed trying to learn to count by 5's. Many took favor to the 10's mat and it was surprising how many began to count by 10's to 100. The ability of the

program to allow students to choose what they were interested in learning allowed students to develop increased motivation to learn and challenge themselves.

4th Grade Buddies- In order to provide a more 1 on 1 learning experience for the students, Suzy suggested that we ask the fourth grade teachers to choose responsible students be a buddies with the UPK students. This was an instant success. I immediately noticed that the 4th graders had to learn how to simplify their explanations and understanding of the number concepts so that they could find ways to teach the UPK students to understand. This also exposed the UPK students to more complex math terms like “double” “add” “more” and “less” that the 4th graders would naturally use to try and teach the concepts. The 4th graders also began adding their own spin and fun ways of teaching like playing catch and counting, and playing number games on the chalk boards and allowing the students to write numbers. The UPK students and 4th graders worked so well together and formed bonds with each other quickly. Both groups of students were excited about working together and meeting 1-3 days a week for about 15 minutes. At the end of the program we had a Math and Movement party where we played “Counting Sparkle” and the buddies counted M&M’s together before eating them. We also took some time to videotape some of the interactions with the buddies on the mats and doing the skip counting exercises. I think the 4th grade buddies added motivation and excitement to the program and created a unique and valuable learning experience for all the students who were involved.

Impact on Student Learning and Motivation: From my informal observations on a daily basis implementing the program, there were noticeable results in the UPK students learning and motivation. Instantly students were excited about doing the math and literacy mats and looked forward to it every day. By the 4th week students would remind me that we had to do math and movement after lunch and were excited about doing this as well. I soon began to notice that many of the students that had trouble counting in the teens were now verbally saying each number up to twenty and beyond with ease. Some students began counting well into the 30’s 40’s and even up to 100 when prior to the program many students could only count to 12 and the rest stopped at 20. More students could count and recognize the numbers on the calendar that we had been doing since the beginning of the year and only now began to count accurately. Several students could count by tens, some by fives and even by two’s. I observed one student using the count to 20 mat to skip count by 2’s without any prompts from an adult. One of the lowest students could count above 30 and nearly beat one of the highest students in a friendly counting competition. Students appeared to be recognizing more letters and sounds and some really took to the sight words mats and showed tremendous sight word recognition development. Children at every skill level of math and literacy seemed to be motivated by the program as well as increased their understanding of concepts.

The students were post tested on June 17th to gain formal data about the success of the program. Suzy let me know that there were significant positive results in all areas that were tested. (Please see the post test for detailed results.)

Conclusion: The apprehension I may have had before starting the program is a distant memory. In the short period time of this study, the excitement of UPK math and movement increased and help to drive its success. What allowed the program to be successful was that it was easily modified to meet the needs of each student. It allowed for direct instruction, informal instruction, one on one instruction, cooperative learning, older students to teach younger students, and for students to learn at their own pace and interest level. It naturally appealed to the interests and needs of the students. The students learned rapidly, were physically active and had fun learning. The results of students learning were beyond my expectations. This program has great potential at the UPK level. I feel because of the past seven weeks doing Math and Movement, the students are better prepared to be successful in their future education.