

Summative Videotape Assignment
Performance Based Assessment

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Introduction

The fifteen students of the math class meet every day for a 45 minute instruction. The 6 boys and 9 girls are primarily of Iranian-American ancestry with 2 Afghanistan-American students. Majority of these students are second generation children of Middle-eastern parents. The class stays in one classroom and instruction in all the academic content subjects: language arts, math, science, and social studies—are taught by the homeroom teacher for our elementary department. Our classroom routine upon the start of the next class is to gather their textbook, workbook, and notebooks and wait for instruction. The class goes over the lesson objectives and the activities to be covered throughout the class. This is followed by the 20 minutes of introduction and modeling/demonstration of mathematical procedure or application (as necessary). Students then break into groups for small group involving a more direct instruction approach for those who need extra support and independent work for the advance learners for 15-20 minutes. Assigned activities are done by students for practice and independent application of skills learned. The next 15 minutes is designated to for the class to reconvene and assess achievement of the objective/s by answering and discussing how students got the answer for given questions. The remaining time is dedicated to putting their materials away in preparation for their transition to the next class.

The videotaped portion of this lesson shows the small group instruction given to two students who were identified as needing a more direct-instruction approach to learning. It will show the instructional unit on creating a fact family with manipulative. After the class received a whole class instruction, the two students were called in the “U-Table” for small group instruction to check for their understanding of the concept introduced. They are provided with

manipulative and an index paper for them to write the fact family they came up with through the hands-on exploration. Questioning was used to prompt students to think critically of what they are doing and how they are doing it to show understanding. After the small group activity, the class reconvenes to discuss their activities and practice together with given questions for further practice of applied understanding of concept. Feedback is given when needed during the closing discussion.

Analysis, Interpretation of Classroom Lesson

According to Piaget, students who are in the late childhood stages are moving from the preoperational stage of their cognitive development to the concrete operational stage. By this stage, students' thought pattern is now logical and systematic making it easier for them to find answers to simple problems (Presnell, 1999). Benjamin Bloom's work with the taxonomy of learning supports this movement of cognitive operations to increasing complexity (Eisner, 2000). The framework outlined in Krathwhol's work, A Revision of Bloom's Taxonomy, was taken into consideration in this summative videotape of the teaching practice and student experience for this paper. Krathwhol (2002) called for a two-dimensional framework that combines knowledge and cognitive processes to help educators like me examine the emphasis and curricular alignment that improve the instruction provided to students. Strengths, weaknesses, best teaching practices, and lesson significance will be discussed through exploration of the six categories of the revised taxonomy.

Mathematics instruction involves a certain amount of rote memory that is part function of ***remembering***. In this specific lesson with fact family, remembering will play a significant role

as students are expected to commit to their memory that certain numbers when combined are multiplied their product will be the same regardless of the order. They have to recall/remember that this concept is similar to addition's commutative property. The ability to remember key concepts from previous lessons and create new concept from that point is key to this type of objective. Central to the objective of understanding how multiplication and division are related is remembering that certain mathematical functions are interrelated such as that of addition and subtraction where one can check answers by inverting the process. To prepare for this lesson, I remembered how some students had confusion on how addition can be cross checked with subtraction. This resulted to some students getting frustration easily with equations involving 3 or more digits of numbers. Avoiding this type of scenario will I will have to keep in mind students who are more susceptible to confusion. Providing an introductory lesson that uses manipulative will allow these students to explore and remember some procedural skills from previous lessons. This skill was evident when the two students attempted to use the commutative property of addition with their manipulative. Of course, simply remembering a larger concept that applies to a specific function does not make sense which facilitated the discussion and feedback look that was anticipated for this direct instruction session within the small group. They had to adjust their understanding and connect what they already know to the fully understand how fact family works.

Developing critical and creative thinking skills using the manipulative provided will allow me as their teacher to give feedback (corrective or encouraging ones) that can move from simply remembering to actually *understanding* how mathematical processes are related. As students engage in this type of hands on activity, they engage in critical and creative thinking

which moves them through several iterations of generating new ideas (Cennamo et al, 2012). This type of preparation and forethought is essential when aiming for direct instruction in a smaller group setting which is what these two students need. According to Small (2010), differentiating instruction is a great way to make math meaningful for all. The quality of the questions we teacher use allows student to explore and test their understanding of concepts and processes in math. In the activity chosen for this video analysis, the use of manipulative gave the two students the opportunity to explore the big idea, make some mistakes with corrective feedback given right away, and show their understanding by the quality of their conversation and reasoning.

Differentiating the math instruction for these two students enable them to feel in control and attain ownership of their learning. They were able to get into an emotional state that enabled them to be engaged in the learning process. Tailoring the small group into just the two of them helped in minimizing the frustration since they are now able to work in a pace that is more suitable to both of them without feeling rushed by other participants of the small group. In this smaller group, they were more willing to accept help, and not shy away with making mistakes. According to Dweck (2010), this growth mind-set can help students make learning purposeful and more meaningful. As they gain more confidence in finding connections with the use of manipulative and tying it in the topic of fact family, they are able to *apply* their understanding to broader examples. A major part of the videotape coverage was to showcase how these two students applied their understanding of how 2 numbers yields the same product regardless of order (commutative property) and how all three numbers can be used to show a fact family in

both multiplication and division. In creating their fact family, one can easily see if the students were able to apply logic or if misconceptions were made which necessitates corrective feedback.

Evaluation of this lesson was accomplished through the informal assessment in the form of answering the textbook's "Check What You Know" activity independently. This is one of the stages in using direct instruction (Donk, 2007).

One of the strengths of this lesson is the ability to reach these two students at their level. As the videotape will show, the otherwise unfocused student from the formative video was able to jump right into the activity and was engaged in his work. When asked some questions to check for his understanding, his responses indicated that he was on top of his work. On the other hand, the same child who showed frustration in the first video showed the need for a more direct approach to teaching that involves continuous feedback and adjusting of understanding. Being able to offer this corrective feedback was helpful in avoiding misconceptions that may carry through other concepts throughout the unit. Another positive outcome from this change in instruction is the understanding that these two students will profit more from this type of instruction since it eliminated the pressure to perform with their peers with varied ability levels. Jensen (2005) cites that brain matures in different rates which affect the capacity for both concrete information learning and abstraction (p. 118). These students are not quite there yet and need support to learn both concrete and abstract concepts in math. The small grouping was a better setting for them coupling it with direct instruction. The social experience is a brain-changing experience that can have either a positive or negative effect (p. 100). Having created an environment that takes away a source of frustration created a pathway for engagement

because it puts them in a stable emotional state that is more conducive to learning. Learning is highly influenced by students' emotional states (Jensen, 2005).

Reflection

This project was very helpful as it provided an avenue for me to critique my own teaching practice as it translate to student learning, or lack of. Being able to view myself teaching was enlightening because one always assumed that we are good at what we do ALL the time. The reality can be either closer or farther the truth. More often than not, I look at the success of my lesson in terms of numbers—what's the percentage of scores in relation to assessments such as quizzes/tests. But obviously this is not the way to go. Teaching is a “caring profession”, as their teacher, I look out not only for their academic growth but overall welfare. This experience allowed me to inquire more into how I make the whole teaching and learning synergy work in my classroom. As Wolk (2008) mentioned, transmission teaching creates an illusion of learning. If I want my students to care about learning, and ultimately the world, I need to make their learning inside the walls of my classroom purposeful. Videotaping myself teach made me analyze what I did in my lesson, how I prepared it, its success and/or failure to reach all students, and gain a better look at students' behavior in relation to my teaching. It was really an eye opener. As Cruickshank and Haefele (2001) said, becoming an analytic teacher required being investigative and self-correctional. Having to self-correct was something that we all wish as teachers but randomly do but must do in order to facilitate change that moves education forward for our students.

Overall, I am grateful for the opportunity to see my students in action and find ways to help them further their learning. Studying the strengths and weaknesses of both video recording emphasized the need to use different lenses to see how we affect learning through our teaching. It also showed me the importance of really knowing our students and being able to meet their different needs. Maslow (1998) believed that if students' needs are not met, it is unlikely that they will be able to attend to the cognitive demand of learning (p. 39). Having the chance to look at myself outside the box allowed me to see things a different way and gave me the opportunity to change things in favor of more purposeful learning experiences for students who need it the most.

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