

Annotation & Evaluation

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Agey, Anasstasja AP4 - Critical Thinking

Status: **Evaluated**

EVALUATION				
	Emergent	Bridging	Fulfilled	Proficiency Level
<input type="checkbox"/> Insufficient <input type="checkbox"/> Inappropriate	<input type="checkbox"/> 4.E.1 Demonstrate knowledge of critical thinking and problem solving skills <input type="checkbox"/> 4.E.2 Identify strategies for developing higher order thinking skills for students (P-12) across contexts	<input type="checkbox"/> 4.B.1 Construct a repertoire of realistic projects or problem solving tasks for measuring students' (P-12) critical thinking <input type="checkbox"/> 4.B.2 Plan for strategies that promote development of critical thinking skills and problem-solving capabilities in students (P-12)	<input checked="" type="checkbox"/> 4.F.1 Use performance activities, such as realistic projects and problem solving activities that measure students' (P-12) higher order thinking skills, as appropriate <input checked="" type="checkbox"/> 4.F.2 Implement techniques and strategies that promote students' (P-12) development of critical and creative thinking and independent problem-solving skills, as appropriate	<input type="checkbox"/> Preliminary <input type="checkbox"/> Emergent <input type="checkbox"/> Bridging <input checked="" type="checkbox"/> Fulfilled
<p>Comments from Evaluator: Congratulations! You have clearly demonstrated that you can assess students' higher-order thinking, and teach them through active involvement to think critically. You have done a nice job showing that you meet FEAP 4.</p>				
ANNOTATION				
<p>1. Type and description of evidence(s) (e.g. assignments, activity)</p> <p>1st evidence- Function Machine Lesson: This lesson was completed for my Teaching Math II course during Summer 2008. The purpose of this lesson was to design a function machine and a corresponding lesson to help students internalize the concept of algebraic patterns in mathematics.</p> <p>2nd evidence- ESOL Specific Lesson: This lesson was completed during my ESOL Practicum in Fall 2008. It was designed to help three ESOL first graders develop the skills to identify cause and effect relationships in the stories they were reading in class. Modifications and visuals are included in the lesson.</p> <p>3rd evidence- Geography Lesson Plan: This assignment was completed for my Level II Internship and required for my Teaching Social Studies course during Fall 2008. The purpose of this lesson was to assist students in better understanding landforms by incorporating a hands-on activity in which students construct their own landforms from molding clay and have to justify the features of their landforms based on what they have learned.</p>				
<p>2. How did the evidence(s) address the Accomplished Practice? (Why are you using the evidence(s) to prove you met the practice and rubric criteria?)</p> <p>1st evidence- The Function Machine Lesson meets the Accomplished Practice of Critical Thinking because it requires students to use fundamental mathematical knowledge (such as adding or multiplying one-step equations) to problem solve and find a pattern between a set of given numbers on an input/output chart. The task that was given to students was to observe the given numbers in the chart, track how the numbers changed as they went from the input portion to the output portion of the</p>				

chart, and infer the pattern that was occurring based on what they noticed as they numbers changed. Then, students evaluated the rule or function they came up with and tested it to see if the pattern worked. In the lesson, students move from knowledge and basic fact recall (such as rote memorization of multiplication facts) to synthesis in which students must infer the pattern and consider what would happen next in the set of numbers after the pattern had been identified. Generally, teachers tend to teach at the lowest level of Bloom's Taxonomy: knowledge. However, in order for authentic learning to take place, students must learn to critically think and this lesson demonstrates learning at the application and synthesis level. Techniques such as higher-order questioning were addressed in this lesson. For example, I asked: What might happen to the set of numbers if I multiplied them by 2 and added 1? I engaged them with this question before explaining that this was an example of a rule or function, essentially a pattern in a set of numbers. This building up through the levels of Bloom's taxonomy allowed me to begin with very basic one-step functions and scaffold students through the process of problem-solving by having them solve two or even three step functions by just looking at a set of numbers in an input/output chart.

2nd evidence- The cause and effect lesson plan addresses the Accomplished Practice of Critical Thinking because the lesson is designed to promote the reading strategy of cause and effect and engages students in active learning. This lesson was planned to scaffold the learning of three ESOL students by using their background knowledge as 1st graders to help them infer conclusions about given situations. The objectives of the lesson specifically address the analysis level of Bloom's Taxonomy in which students are expected to distinguish between cause and effect and use that knowledge to identify text structure when they are reading a story. This can be a difficult concept for six and seven year olds to grasp. However, the lesson guides the students through the concept of a cause and effect relationship by presenting them with scenarios they can understand such as: What would happen if I did not follow directions when the teacher asked me to do something? This question engages students because they are currently in a classroom and know that a variety of scenarios could happen because of them not following directions. Brainstorming the effects of not following directions allows the student to pull from their background knowledge and problem solve. In the assessment portion of the lesson, students are given a graphic organizer to fill out. The causes are given to them and it is their duty to use what they know and infer a possible effect. This promotes inquiry because the students must question and explore how they might approach the situation. The beauty of inquiry is that it is open-ended. This gives the students an opportunity to explore and predict what might happen because of an action, a critical skill for reading comprehension and engaging learning. For example, one situation given is: save your money. Each student would have to use what they know to come up with a likely effect. The realistic approach to problem-solving is evident in this lesson because it asks students to draw from their own experiences. This realistic approach to cause and effect will allow them to become independent thinkers.

3rd evidence- The geography lesson plan specifically addresses the Accomplished Practice of Critical Thinking because the lesson requires students to construct landforms out of clay as a performance assessment to determine whether they have fully comprehended the concept of landforms. Not only are they required to construct the landforms, but they must justify the features they have created to their teacher and their classmates. Justifying their work to others requires students to discuss how they reached the conclusion to which they came. Having to explain what you learned is an authentic measure of applying critical thinking skills. This lesson takes students from the knowledge level of Bloom's taxonomy wherein they are defining and describing landforms to the evaluation level in which they must justify the construction of their landforms and critically appraise the creations of their classmates during what is called a museum walk. In a museum walk, students walk around, observe the work of their classmates, and develop criteria for evaluating it such as: This must be a plain because it is flat. This entire lesson promotes creative thinking and inquiry because they must construct a creative piece. There is no right way to form a mountain. They must experiment with the clay to create peaks and valleys. It also promotes higher-order thinking because they take the knowledge they have learned and apply to something realistic and tangible. Most students have not had the opportunity to see the Grand Canyon, so this lesson is valuable for them because they are able to experience it by constructing it with their hands.

3. Answer the question below that best fits your evidence

a - If your evidence involved your direct work with (P-12) students, answer this question: How did the evidence/s impact students' (P-12) learning? (How would/did the evidence(s) help students learn?)

b - If your evidence did not involve your direct work with (P-12) student, answer this question: How could the evidence/s impact students' (P-12) learning? How could the evidence(s) help (P-12) students learn?)

a- The Function Machine Lesson did not take place during any of my internships or practicums. Rather, I had the opportunity to volunteer in my sister's third grade class to teach the lesson during her last few weeks of school since, coincidentally, her teacher was working with the class on input/output charts and recognizing patterns. This was a great opportunity for me to try the lesson out with intermediate grade students since up until that point I had not worked with students older than six. I developed the function machine with my sister since she had the experience of currently being in the third grade. She knew what would appeal to her classmates so I took her insight very seriously as I developed my machine. The purpose of developing the function machine was to engage students in the process of learning and motivate them to participate in the lesson. I also have an inkling that my cuddly, happy-looking function machine made the algebraic concepts a little less threatening to struggling students. This lesson helped students develop higher-order thinking skills because they were challenged with a problem. They had to figure out why the function machine was giving them a set of numbers and determine the relationship between those numbers. Building from concrete skills such as multiplying and adding to more abstract concepts such as variables or determining a pattern in a set of numbers helps students learn to problem-solve and think critically. To evaluate that they understood the function, I would ask the student to explain the rule or pattern they found in the set of numbers using math talk. For example, to directly quote the reflection in my lesson, a child found the rule to a two-step equation. When probed to explain how she found the rule she said: Well it was easy! I just followed the pattern. See? 15 times 2 is 30, plus 2 is 32. 19 times 2 is 38, plus 2 is 40. Then I asked: How do you know? She said: Because I could put any other number in there and if I added two and times [sic] it by two I'll get the answer. So together, we wrote the rule on the board as $N \times 2 + 2$. Exposing children to problem-solving at an early age will make them critical, independent thinkers as they progress through their education.

a- This lesson was designed for 3 ESOL students and implemented in a mainstream 1st grade class. This lesson was planned as a mini-lesson or supplement to what they were currently learning about analyzing text structure. This lesson is an inclusive lesson because it provides learning gains for all students. However, the ESOL students needed some remediation in the concept of cause and effect because they could not relate the concept in the stories they were reading. I decided to take an approach in which they would use real-life, first grader knowledge to build on this abstract concept. I thought if I engaged the students in their own experiences, they would be able to use what they know to infer possible effects for causes. In the lesson, I sat with them and explained cause and effect through scenarios such as not listening to your teacher and running in hot weather. As I spoke to students, I utilized pictures to help them understand the concepts we were discussing. After

showing students that a cause makes something happen and an effect is what happens, I asked the students to show me their understanding by using picture cards. I would give them a picture card such as a yawning face and ask them to choose the situation that would most likely happen because of someone yawning. After the student selected the sleeping card, I did a simple thumbs-up, thumbs-down assessment with the group to make sure we all agreed that if you were yawning it meant you were tired and you would probably go to sleep. The concrete relevance applied to the abstract concept of cause and effect allowed my students to develop their knowledge about something they did not fully grasp before. The real-life problems that they were asked to solve helped them manage the information in a comprehensible way, something that is crucial for English Language Learners. In my final assessment, I asked students to organize the information they learned on a T-chart. They were given three causes: plant seeds, get sick, and save your money. This was my way of releasing control and helping them independently solve the problem. They were asked to draw the likely scenario and then label it so that they could justify why they chose that effect. For example, my speech emergent student indicated that if he got sick he would see a doctor and drew a picture of a doctor. However, one of my intermediate fluency students took the same situation and drew herself at home watching TV. She labeled the picture stay home because that is what she would have traditionally done on a day she was sick. These students were able to use their background knowledge and real-life experiences to construct a concrete and realistic interpretation of the often very abstract cause and effect. The key to their critical thinking is using information they already have to create new and more complex thought-processes, something they did in this lesson.

a- This lesson was implemented in my level II internship with 4th and 5th grade students. My students had been having trouble explaining to me what a landform was, in both writing and orally. My cooperating teacher taught a mini-lesson about it in the beginning of the year because she felt it was something they should be able to grasp quickly. However, their quiz scores proved otherwise. I asked her if I could use the information from the book to better communicate a concept that was supposed to be simple. I thought that the students needed re-teaching because the book was not relaying the information to them in a comprehensible manner. So I designed this lesson with communicating the information in mind. I have a variety of learners in the room, so I decided to strike on all fronts. I incorporated the map and globe to help my kinesthetic learners, the graphic organizer for my visual learners, and a review discussion for my auditory learners. When teaching the lesson, I thought about how I presented the information and utilized visuals with the key vocabulary as I spoke to make a connection between the words and the pictures. This is especially helpful for ESOL learners. Additionally, I would stop to review or repeat information and allow for more wait time for the ESE learners who sometimes need those few extra seconds to process the question. During the review session, I wrote the questions and vocabulary on the board to keep us on track and help the students who needed to see the information to make it comprehensible. When giving the directions for the project they would construct at the end of their lesson, I also wrote them on the board and conferred with individual students who needed more instruction. The results were fantastic. Everyone turned in a completed project with at least three labeled landforms and provided verbal justification for why they had labeled them canyons or plateaus. During the museum walk in which students viewed one another's landforms, students had the opportunity to discuss with each other why their canyon looked the way it did and how they made their mountain range. This opportunity for students to communicate with one another was most beneficial because they were able to convey the learning to both myself and their classmates. They were able to defend their pieces by saying that it was a plateau because it was high, raised ground that was flat on the top. This was information that even my lower-performing students could convey. I was thrilled that students were able to use the academic language of the lesson and make it comprehensible to themselves, their classmates, and me. The final task was a 3-2-1 assessment in which they had to write answers to a couple of questions that they would now be able to answer because they talked about it and had the opportunity to experience it with their hands. This written short answer assignment communicated to me that they had understood the concept of landforms because the information had been presented to them in a way that it had not been before. Their learning was scaffolded through each part of lesson as they were moved from understanding landforms to independently constructing them.

4. Reflect on what you learned about this Accomplished Practice? (Write a reflection about what it means to you now that you've selected evidence(s) and have written this annotation about it)

I learned that the development of critical thinking skills is crucial to helping students problem solve. When using the function machine to assist them in finding a pattern in a set of numbers, they must use criteria they know and have learned to help them find a solution. Often, teachers teach at the knowledge level and this does not develop students into future problem-solvers. It makes them collectors of a variety of facts that do not fit together in any reasonable way. My function machine lesson helped students see a connection in algebra. Algebra is not merely the random collection of letters, symbols, and numbers. Rather, it helped the students see that algebraic concepts involve the observation of numbers as they change to help them find the missing pattern. They were able to see that there is a purpose for learning this. I have learned that teaching algebraic concepts does not have to be intimidating because employing the function machine made the learning accessible and fun to all students. The great thing about mathematics is that it does help students learn to solve realistic problems. Our goal as teachers is to help them find their way and constructing a function machine was an enjoyable way to help them work on their problem-solving capabilities.

I learned that even our youngest students in the primary grades require instruction in critical thinking. This is especially crucial for ESOL students because, while they quickly develop conversational language skills, they often lack the academic language needed for success. When designing this lesson, I knew that the concept of cause and effect was abstract, even to the language proficient 5th graders I work with. So, I created my lesson with the modifications of pictures, visuals, and graphic organizers to help my students better contextualize a reading strategy that is often hard to identify. I scaffolded their learning by using real-life scenarios that involved cause and effect. What they have learned will give them the background they need as they become independent readers and begin to further analyze text. I enjoyed teaching this to them because I knew that they were learning it and enjoying it. Teaching critical thinking skills in reading can be painless and fun for both students and teachers.

For creative thinking to truly take place, students must experience it. This was my purpose for the geography lesson. I believe true critical thinking takes place when we can take something we are having trouble learning because of rote memorization and transform it into something we can feel, see, and experience such as constructing landforms out of clay with your hands. The most important thing I learned from all of this is that social studies instruction does not have to take place solely within a text book. When we teach out of a text and do not apply it to anything, we cannot expect students to move beyond the knowledge level in Bloom's Taxonomy. I will definitely use this lesson again because it is accessible to all students at every language and academic level. Learning something in a meaningful way is the only true way to learn it.

Status: Evaluated **Last Modified:** 12/01/2008

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