Maximizing the Effective Use of Formative Assessments

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Abstract

In the current age of accountability, teachers must be able to produce tangible evidence of students' concept mastery. This article focuses on implementation of formative assessments before, during, and after instruction in order to maximize teachers' ability to effectively monitor student achievement. Suggested strategies are included to help expand educators' repertoire of possible formative assessments that can be utilized in the classroom setting. These strategies can make teachers more productive and effective in monitoring and assessing student achievement.

Second grade students were busy in their learning communities, discussing how the pieces of a puzzle should go together, or in this case, come apart. It was a rather interesting puzzle because the pieces were real and once taken apart, they could not be put back together, which made the assignment that much more difficult for little fingers. This group of second grade students would never look at flowers the same way again.

As the activity unfolded, I could not wait to see how the assessment for the activity would be handled. Students were challenged by the teacher candidate to explore the parts of the flower by dissecting their specimen. For weeks now, we had discussed the importance of formative assessment strategies as related to effective instruction; strategies that, as a public school teacher, I had found effective in my classroom. Now I was hoping to see the results of those discussions open up like a flower in spring[1].

"Formative =Feedback" was a common thread in notes taken by my teacher candidates with the understanding that answering the question "Did the student

[1] http://www.softschools.com/science/plants/flower_anatomy.jsp

master the objective?" meant giving me tangible evidence of student results, which differs extensively in the elementary setting. Thus began the instructional focus of understanding the importance of giving student feedback throughout the lesson by effectively using formative assessments to evaluate mastery.

Formative Assessments

A meta-analysis by Bangert-Drowns, Kulik, and Kulik (1991), in which 29 studies were analyzed, strongly supports the idea that student academic achievement is directly correlated to the number of formative assessments given. But the most important factor here is that the student feedback must be focused on the quality of work or concept to be mastered, not on grades or scores which set up student comparison and devalues the formative assessment process (Butler, 1987).

According to Fisher and Frye (2007) "formative assessments are ongoing assessments, reviews, and observations in a classroom" (p. 4) which provide a "systematic process to continuously gather evidence and provide feedback about learning while instruction is under way" (Heritage, Kim, Vendlinski, and Herman, 2009, p.24). Consequently, instruction must engage the learner as well as check for understanding in order for effective instruction to take place in the elementary school setting. Thus, teachers must have a solid foundation as to understanding formative assessments and the impact such feedback has on instruction and student success.

Checking for Understanding

In the current age of accountability, teachers must be able to produce tangible evidence of concept mastery. Teachers who begin lesson planning with the following questions, set the stage for integrating formative assessments: What do I want my students to be able to do as a result of this lesson and how will I know that

they have mastered the concept? Checking for understanding is an important aspect in understanding whether or not your students have actually internalized the concept or objective. What strategies could be used to give the students feedback and assess their understanding?

Let us return to the lesson on flowers posed earlier. What strategies could be used to give the students feedback and assess their understanding of the parts of a flower? The following tables outline techniques that could be used to check for understanding. When reading through the different techniques listed, think about the students in the previous lesson scenario. Which techniques would be appropriate for their age and grade level?

Techniques to check for understanding can take place at any time; before, during, and after the lesson. For example, if the objective or concept being taught is building upon prior knowledge, checking for understanding before instruction is important because if the students do not have a firm foundation upon which to build concepts, assimilation will not take place. The same is true during instruction, in which the steps of a process must be followed in order to understand and correctly assimilate the new information. Furthermore, for teachers to be confident that students have mastered the new concept, checking for understanding at the end of the lesson will give evidence needed. The following tables outline techniques used to check for understanding before, during, and after instruction.

Before Instruction

When teachers find ways to engage students at the beginning of a lesson, students' in turn begin to activate prior/background knowledge. This is important because activating prior knowledge is the first step in assimilating new knowledge. Furthermore, teachers are more effective in guiding student learning in order to

facilitate concept mastery. The strategies listed in Table 1 below help teachers check for understanding and engage students before instruction takes place.

Table 1. *Tools to Check for Understanding: Before Instruction*

Index Card Info	Distribute index cards and ask students to write on both sides, with these instructions: (Side 1) Based on the upcoming theme or concept, list a big idea that you understand about the concept (Side 2) Identify something about (unit topic) that you do not yet fully understand and would like to know.
Sixty Second Sound Off	A one-minute writing exercise with a focused question about a specific goal that can, in fact, be answered within a minute or two.
Say What?	One on one conversation with a student to check their level of understanding.
3-Minutes Please	The Three-Minutes Please provides a chance for students to stop, and make connections to prior knowledge or experience, or reflect on the concepts and ideas that have just been introduced, and seek clarification. • I changed my attitude about… • I became more aware of… • I was surprised about… • I felt… • I related to… • I empathized with…

All About Me!	Students collect information about what they know, analyze what it reveals about their progress toward the new learning goal, and plan the next step in the process.
Diary Day	Students "journal" about their understanding of the topic, concept or lesson taught. The teacher reviews the entry to check for understanding.

During Instruction

Integrating informal formative assessments during instruction allows the teacher to know where students are in their progress toward mastery. With this knowledge, students' conceptual understanding of the objective being taught presents opportunities to discover misconceptions students may have related to the information as presented. Therefore, by addressing these misconceptions, accommodation can take place. The strategies listed below in Table 2 will help determine what students know during instruction.

Table 2. *Tools to Check for Understanding: During Instruction*

High Five	Ask students to display a designated hand signal to indicate their understanding of a specific concept, or process: For example, I understand_____ and can explain it (thumbs up). - I do not yet understand _____ (thumbs down). – I am not completely sure about _____ (thumb extended horizontally).
Misconception	Present students with a common misconception

Check	about a concept, or process. The misconception check can also be presented in the form of a multiple-choice, hand signals, or think-pair-share.
Check Up Time	Teacher walks around the classroom during instruction to observe students as they work to check for learning. Strategies include: •Anecdotal Records •Conferences •Checklists
Analogy Angle	Periodically, present students with a simple analogy prompt: _____ is like _____because_____ _____.
Choral Comeback	In response to a cue, all students respond verbally at the same time. The response can be either to answer a question or to repeat something the teacher has said.
Think-Pair- Share	Teacher poses question, gives students time to think individually, then pairs students (discuss with partner), then teams share ideas with the class.

After Instruction

The strategies in Table 3 below can help bring closure to a lesson. Valuable

instructional data can be collected at the end of a lesson to demonstrate students newly acquired knowledge and understanding. Strategies implemented after instruction can also assist in the collection of data in order to make instructional decisions about the effectiveness of the lesson.

Table 3. *Tools to Check for Understanding: After Instruction*

License to Leave (Exit Slip)	Small piece of paper of index cards-students write short responses to questions posed at the end of a class or learning activity or at the end of a day. 2-3 questions
Portfolio Pride	A portfolio is a collection of significant work, carefully selected by the student and teacher, dated and presented to tell the story of a student's achievement or growth in well-defined areas of performance, such as reading, writing, math, etc. A portfolio may also include personal reflections where the student explains why each piece was chosen and comments from the teacher about what the portfolio shows about the student's growing skills and abilities.
A-B-C What You Know!	Each student is assigned a letter of the alphabet, or draws a letter from a stack of "letter cards" and they must choose a word which begins with the letter they selected that is related to the topic being studied.
Spin Away	Student teams create a spinner marked into 4 quadrants and labeled "Predict, Explain, Summarize, Evaluate." After new material is presented, the team captain spins the spinner and the team has to answer a question based

	on the location of the spinner. For example, if the spinner lands in the "Summarize" quadrant, the teacher might say, "List the three key concepts just presented."
Ticket OUT	Students respond in writing or verbally to short questions/assignments.
Map it Out!	Graphic organizers which allow learners to perceive relationships between concepts through diagramming key words or drawings representing those concepts. http://www.graphic.org/concept.html

General Strategies

Strategies listed in Table 4 below can be used before, during, or after instruction. These general strategies are an effective way to check for understanding in continuing to assess students' mastery of concepts.

Table 4. *Tools to Check for Understanding: Before, During, or After Instruction*

Inside-Outside Upside Down!	Students count off One, two, one, two, etc. Inside circle (ones) and outside circle (twos) face each other. Teacher asks question to the ONES, answer is discussed with the facing student. After discussion, Outside circle moves to the right which creates a new pair. Repeat. Naming to two teams always adds to the fun! (This is also a good icebreaker at the beginning of the year for student to get to know each other)
Numbered	Each student in a group of four is assigned a number.

Heads Team Together	The teacher asks a question. Members of each group work together to agree on an answer. The teacher randomly selects one number (1-4) and the student with that number responds with an answer for the group.
One Word Wonder	Students select or invent one word which they feel best summarizes the objective or concept.
Verbal Vantage	- How is _____ similar to/different from _____? - What are the characteristics/parts of _____? - In what other ways might we show show/illustrate _____? - What is the big idea, key concept, moral in _____? - How does _____ relate to _____? - What ideas/details can you add to _____? - Give an example of _____? - What is wrong with _____? - What might you infer from _____? - What conclusions might be drawn from _____?

	- What question are we trying to answer? What problem are we trying to solve? - What are you assuming about _____? - What might happen if _____? - What criteria would you use to judge/evaluate _____? - What evidence supports _____? - How might we prove/confirm _____? - How might this be viewed from the perspective of _____? - What alternatives should be considered _____? - What approach/strategy could you use to _____?

Summary and Conclusion

Formative assessment, whether informal (not scored) or formal (scored), is an essential indicator needed to check for student understanding and mastery of objectives. Looking back at the flower scenario, rather than presenting students with an intangible visual (picture or video) the teacher provided the students with a real flower. Students were able to use their senses to connect with the presented concept – the parts of a flower. The value of this lesson lies in the connections

students were able to make to the objective of the lesson and their prior real world experiences. The next time a student in this class sees a flower they will be able to immediately connect their knowledge to their experience gleaned from this lesson. Checking for understanding strategies were used before, during, and after instruction to develop and support conceptual understanding related to the parts of a flower. Additionally, students' conceptual understandings were supported by following the hands-on experience with an interactive note taking activity where students recreated their experience where the parts of the flower were drawn and labeled.

Formative assessment should be thought of as a path to evidence the authentic assessment of knowledge, understanding, and skills that students acquire during instruction. How powerful would that assessment be for students receiving constructive feedback regarding their performance from both the teacher and their peers? "When students focus on improvement and progress, they are more likely to adopt mastery goals and develop high self-efficacy and expectations for success" (Cauley and McMillian, 2010, p.5). Therefore, when students receive validation and affirmation of their learning from multiple sources in a variety of ways, they gain confidence and self-efficacy related to their ability to learn and master concepts and teachers gain reflective evidence in regards to effectiveness in the classroom settings.

References

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