

I As I began the process of module four, my mentor and I took a look over the CCT Performance Profile. After reading through the Continuum of Effective Teaching, I was able to better identify my current strengths and weaknesses within my assessment skills. After looking over my self-assessment, I quickly realized that one of my biggest downfalls was my lack of assessing my students formatively throughout a lesson. At the current time, I had been using formative assessments to check prior knowledge before a unit and to check daily understanding after a lesson had been completed. Overall, I believe that I was not doing an adequate job of assessing my student's current knowledge during my lessons. I needed to find a way to have knowledge of my student's current levels of understanding, so that I could adjust my lesson as they are being presented, to better fit my student's needs. I strongly believe that by changing my formative assessment skills, I can become a more efficient and effective teacher.

When I began this module I had primarily used two methods of formative assessment to check my students understanding. The first kind of formative assessment had been through pre, mid and post unit assessments, while my second kind of formative assessment were exit slips. I strongly believe that the assessments and exit slips were beneficial in helping me adjust my future lessons but they both did not help give me an on spot check. I needed to find some new ways to modify my lessons as the lessons were being presented. I always want to have the pulse of my class throughout my lessons, so with new techniques, I believe I will find beneficial ways to achieve this goal.

To start off the module, I decided that I needed to implement a formative assessment that would quickly let me know how a lesson was going. I wanted to have something that would take little time but be effective in letting me know how its progressing. At first I came up with the idea of a "thumb check". The idea of a "thumb check" is that at any moment in the lesson I would ask for my students to give either a thumbs up, which indicates a strong understanding, a thumbs down, which indicates a lack of understanding or a thumbs sideways, which indicates weak understanding. I believed that based on this information I could either continue with the lesson or redirect the lesson to better suit my class.

To start this method off, I decided I would have a trial run of the "thumb check" in my Geometry class. The lesson was an introduction to trigonometry and I decided that I would use the check after I had the students practice using the inverse of a trig function to find an angle measure. Once I reached this point in the lesson, I quickly explained what the "thumb check" was and asked for the students to perform the check. Out of my seventeen students, twelve gave thumbs up while five gave a thumb sideways. At this moment I felt confident that the students had the level of understanding needed to move forward with the lesson. If more students had indicated a lack of understanding, I would have stopped the lesson, took some questions and worked to bring the classes overall level of understanding up to an acceptable level. After the lesson was completed I handed out an exit card on the same topic that I gave the "thumb check" on. To my surprise, twelve out of the seventeen students answered the question incorrectly. This was a shock to me since the majority of them had indicated a strong level of understanding. If the students had indicated struggles I would have stopped and helped them. After a meeting with my mentor I realized why and how this check was ineffective. The main problem with the check lies within the fact that most students don't want to admit to their peers that they don't understand something. For most students, they would rather just say they understand something, rather than take the risk of looking different. From this,

I realized that I needed to find a new more secretive way to get these quick checks so that students would give me a more honest answer.

To make the quick check more secretive and more honest, my mentor and I came up with the idea of a stoplight. We decided that I could place a stoplight on my worksheets in a spot that would coincide with when I wanted to get my quick check. The idea of the stoplight is that when I ask for the quick check, my students can just shade in the green light for strong understanding, a red light for lack understanding or the yellow light for weak understanding. I liked this idea due to the fact it cuts out the public showing of lack of knowledge. I dislike that it takes a more time because I have to walk around and check the stoplights. But overall, I think this is a much more effective system. To test out the new system, I placed the stoplights on my student's papers during my lesson on finding the equation of the median of a triangle. After walking through the lesson and having students do some practice I explained the stoplight and asked for my quick check. All students quickly shaded their stoplight and continued doing work. While they were working I walked around and checked their papers. During this quick check I saw four green lights, six yellow lights and seven red lights. At this point I stopped the lesson and began asking questions to figure out the area of misunderstanding. It turned out that the majority of the students had forgotten how to find the equation of a line. To help fix this problem, I stopped the lesson and began to teach how to use the point slope formula and the slope intercept formula to find the equation of a line. This ended up pushing the rest of my lesson to the next day, but overall it improved my student's quality of work. If I had not stopped and retaught past material, the students would have continued doing the work incorrectly, being that this topic tied into other lessons, our problems would have continued until I figured out the issues. With the use of the quick check, I found the issue before it became a big problem and modified my teaching to help my students succeed.

Throughout my research on formative assessment I have learned a lot about questioning as a tool to help find your student's current knowledge. One of the key issues the books tend to not address is if you have a quiet class. During my lessons I always make a point to frequently stop and ask for questions. I ask questions because I want to help my students to better understand the topics but I also do it because sometimes it opens up some class discussion that can help everyone better understand the topic. My current classes tend to ask little to no questions. Most of the time, the questions they ask are very straightforward yes or no questions that take little or no explanation. Even though they ask no questions at these points in the lesson, I know they don't fully understand the topic because once I begin to walk around the room I get numerous hands up. Students tend to like asking me questions directly. I noticed that they will purposely wait to ask a question once the actual time for asking questions has ended to avoid talking in front of the class. I believe that they do this because of the exact same reason as to why the "thumb check" failed. They are shy and don't want to present to the class that they may not know something. This is a major problem because while walking around I tend to get the same question multiple times. If they would just ask these questions in the group setting I could answer them all at once and give the explanation to the class as a whole. To get my formative assessment, I decided that I needed to have students write down questions. By having them quickly write down questions I can answer some of the questions to the whole class as opposed to answering it multiple times individually. By doing this form of questioning, I can look through the questions and see if they are all having the same issues or if they all tend to be on track.

To test my new method, I decided to try it out while teaching a unit on solving equations with fractional exponents. The lesson is built off a previous lesson in which we were solving square root equations. To successfully complete a problem we need to raise both sides of the equation to a power that will make our new exponent equal to one. To teach the lesson we refreshed on old material and then discussed our way through some new problems. In the past, I would have asked for questions and probably would have received one or two general questions. Due to the difficulty of the lesson, I decided to use the written question method. Quickly, I had students write down their questions and pass them up. Looking through the questions I noticed a general trend, about eight of my twenty-seven students had a similar question. From this, I realized that many of my students had forgotten the rule about raising a power to a power. This rule, which we had previously covered, is something that is essential to the lesson. If the students had not understood this rule, there would have been little chance at successful completion of the work. By getting all these questions on the same topic, it was easy to know that I had to stop and do a refresh. Altogether, I believe that this lesson had gone very well. I think if I had continued without the refresh the outcome may have been different.

During this current school year, my school has begun a process of "Professional Learning Communities" known as PLC's. These give teachers the opportunities to work and collaborate with other teachers to reach a common goal. To give everyone in the school the opportunity to share their PLC work, our school decided to hold a PLC day in which PLC groups from all subjects presented their findings. During the day I made a point to visit the groups that were presenting primarily on assessment, in an attempt to pick up some new formative assessment skills. While attending a PLC presentation done by English teachers, I learned a lot about one on one assessment. The English department decided to use this method as a way to conference on a piece of work, but I believed that this idea could be modified for mathematics. The main idea behind the one on one conference was that it was to be an informal conversation. It was to be two people discussing and sharing ideas on a piece of writing. By doing this, a teacher could get an understanding of how well a student is doing, without making a formal grade. I like the idea of the one on one conference because I believed that I could modify the assessment to make it better suited for my math students.

To start the changes, the English department likes to pull a student away from the class so that they can have a private conversation. For my math class I decided to not pull the student away from the class. I decided that by leaving the student at his or her desk, I could have the one on one conversation without making it look like a formal meeting. By leaving the student at their desk, I also believed that this could be done without even having the student know that I am performing a formative assessment on them. Another change would be that for an English teacher, the discussion centers on a selected piece of work. For my math students, again, to make it informal, I'd just talk about whatever they were doing at the moment. To keep things consistent, I will try and ask students some of the same questions. In general I'd ask students questions about how things are going for them within the topic, but my major way to find the understanding will be to ask a student to explain how and why they solved a problem a certain way. The last major issue would be how do I choose which students to question. The English department just progressively goes through the class roster until they have talked to everyone. I decided that I would use the previous days exit cards to find a weaker student to question and collect my information on.

To give my formative assessment its trial run, I decided to test it out while performing a lesson on rationalizing denominators to eliminate radicals. I decided to perform my one on one assessment on Subject A, I choose Subject A because he had scored a C on his last quiz and showed a low understanding on yesterday's exit card. While my students were working with partners, I approached him and began the assessment. I started out with, "how are things going?" The student responded with "great" which I knew was not the case due to my reasons for choosing him. To fully grasp the student's knowledge I decided to dive into his work. While he was performing a problem I asked him to explain how and why he was doing a problem. The student had the basic idea that we needed to multiply both the numerator and denominator by the same radical, but he did not understand how to choose which radical to multiply by. The student was stuck multiplying the numerator and denominator by the current denominator. This worked back when we had been working strictly with square roots, but now that we had moved onto other roots, the rules had changed. The student needed to realize that he needed to multiply by a radical that would make the denominator perfect to whatever the root was. To clarify my finding I asked the student how he would start a different problem that had the same idea behind it, to again find that he multiplied the numerator and denominator by the current denominator. From a five-minute conversation, I got all the information I needed. If an average student had been doing this, I was confident that many had been doing the same thing. To fix this issue I decided to bring the class together and question some students. Like I expected, many had the same ideas as Subject A. I then spent the next five minutes clarifying the misunderstanding and then letting the students get back to work. If I had not had this conversation with Subject A, I may have not caught this issue until we were farther into the unit. The one on one assessment quickly gave me the information I needed to help steer my class back on track.

Since I have implemented these new formative assessments along with my other formative assessments, I believe that I have become more efficient and effective as a teacher, but not everything with these assessments has been successful. One lesson that I learned is that I need to pick and choose which assessments I will use on a given day. I learned this lesson due to deciding to try four different formative assessments on one day. During a lesson on finding the equation of a circle, I decided to use the stoplight, question pass up, a one on one assessment and an exit slip. This was just too much for me to handle. I spent most of the class trying to perform all these checks and completely lost track of the lesson. Since that experience I try to stick to one, maybe two of my formative assessments a day.

Looking back on module four, I think I did a good job of trying to help my students through my own learning. I want to make sure that they are getting the best education that I can give them. I think that by assessing them on a more informal way I am better able to direct my lessons and work to suit their needs. Moving forward I'd like to be able to better meet the personal needs of each student. I'm hoping that in the future I can modify my formative assessments into a way to better differentiate my lessons