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## Engaging in Practitioner Inquiry and Critical Dialogue to Explore Student Engagement in a Fifth-Grade Classroom

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## **Engaging in Practitioner Inquiry and Critical Dialogue to Explore Student Engagement in a Fifth-Grade Classroom**

### **Abstract**

*Classroom management and student engagement remain a top concern among emerging teachers. In this article, we, a preservice teacher in her final internship in an undergraduate elementary education program, and a university supervisor, engaged in inquiry and critical dialogue to explore how various instructional strategies impacted student engagement in a fifth-grade classroom. The teacher collected qualitative data through interviews, photographs, survey and observational notes and searched for thematic patterns within the data. To further challenge her beliefs, assumptions and perspectives as an educator, the teacher and supervisor participated as critical friends by engaging in reflective dialogue about her practice and findings.*

*Authors Note: The first author in this article, Bailey, conducted this inquiry during her final semester in an undergraduate teacher education program. She is represented in the article in the first person (“I”). The second author of this article served as Bailey’s supervisor during the time of the inquiry. In cases where both authors are mentioned, the two authors are referred to as “we.”*

### **Introduction**

As a pre-service teacher engaged in an internship at an elementary school, I assisted a fifth-grade teacher, who was a math and science focused teacher, which was a very different environment from the 3<sup>rd</sup> grade class where I’d spent my junior year internships. Since the collaborating teacher (CT) was math and science focused, the first part of the day, I taught math and science to a group of 25 students, and then halfway through the school day, the students would switch and travel to the reading classroom while those from reading would move to the math and science class. In total, the teachers taught 51 different students of all cultural backgrounds every day. When assigned this 5<sup>th</sup> grade internship classroom, I was very nervous and full of doubt about my ability to relate to the students. I was anxious because fifth grade is the grade level that most of the other student teachers feared. I thought that I would be placed into a primary classroom because I had experienced a third-grade classroom in previous internships and had learned a lot about intermediate students. But because there weren’t enough teachers qualified to take an intern at the school, I was assigned to teach fifth-grade. I was disappointed because in my experience as a substitute, I really enjoyed teaching younger students such as first graders, and I taught them whenever I could and generally avoided older students. I thought that because I

was short and closer to their age range, fifth graders wouldn't take me seriously as an intern in their classroom.

I soon realized during the beginning of my senior year internship that the fifth-grade students in both classes were really enjoyable to teach. Although they were more complex and outspoken than younger students, these students were able to learn some interesting content and were able to discuss it in great detail. For example, the students were absorbed in a reading passage about Salem witches that they covered in the extended reading time. They also completed a science unit where they created their own marble roller coasters, and were very successful. However, when co-teaching, I noticed that it was difficult to keep their attention or keep them engaged for long periods of time. Lessons that involved long PowerPoint presentations usually ended up with redirecting obviously bored students multiple times. This was especially evident in the second (afternoon) class with students who were difficult to engage because they distracted each other. They were bright students, but having math and science in the second half of the day likely affected their behavior. There was a lot of wasted time due to off-task behaviors especially towards the end of the school day, which had to be resolved to provide students with more time for learning. Therefore, my purpose was to find a resolution that would incorporate new instructional strategies into the learning environment to help with classroom management, and increase student engagement so that they would participate and focus on the content being taught.

This inquiry was important to my future success as a teacher because in order to teach well, I believed that a teacher needs to implement a consistent management system and teach using effective instructional strategies that motivate students to learn. I have observed teachers who no longer possess the enthusiasm to challenge and engage their students, and from these observations, concluded they didn't have consistent and effective classroom management systems in place nor were they interested in learning new teaching strategies to benefit their students. To brainstorm successful methods of instructional strategy and classroom management, I looked to research on the topic for inspiration. With this purpose, I wondered how I could use engagement focused teaching strategies to increase on task behaviors and participation among students.

### **Student Engagement Literature**

According to Doyle (1990), teaching in classrooms “requires a highly developed ability to manage events” (p.114). I believed that this meant that teachers need to be not only organized, but the students need to know what to do and what their responsibilities are within the classroom. Doyle (1990) brought up

a good point that I believe was an automatic assumption as an intern: that classroom management is mostly necessary for types of misbehavior. It made sense that an orderly and respectful classroom will therefore be “sustained by the way a teacher organizes and guides” (p. 114) a classroom. I wanted to develop the ability to manage a classroom and prevent misbehavior before it occurred. A properly managed classroom would include actively engaged students that understand the expectations and their responsibilities as learners with few off task or disruptive behaviors occurring. I knew I needed to be able to implement in my instruction the idea that an “orderly” (Doyle, 1990, p.115) classroom depends on the activity that students are completing. In order to increase student engagement in the classroom, I needed to include more “small group” (p.115) activities and less independent drill and practice work in all of my lessons. During the previous semester, I rearranged the classroom seating chart in order to separate students who didn’t work well together and to seat students together that would work well with each other. It had improved some, but during times such as turning in homework and ripping out the math homework pages for the day the off-task behaviors increased considerably and I needed to find an alternative during both of these times.

Dreikurs, Grunwald, and Pepper (1998) emphasize a point that when managing a classroom, there are those students who are just opposed to learning and even “refuse to learn” (p. xii). I learned there are children who will come into your classroom and not have the motivation to listen or follow instructions, and teachers need to understand why those students feel that way. I connected this to prior observation; perhaps when teachers misunderstand and choose not to figure out why a student feels this way, it can lead to a negative classroom environment. This can result in the teacher and student becoming frustrated, and the teacher may even yell at the child, which is not an effective form of management. Many factors go into achieving effective classroom management and a positive learning environment such as group dynamics, learning deficits, behavior problems, and parental involvement. To have positive group dynamics within the classroom, I believed that these students needed more opportunities to work as a team to achieve a goal and learn in the classroom.

Cangelosi (2013) states that teaching experiences can either be “satisfying or frustrating” (p. 3). My goal was to have a classroom where students cooperatively learn with few rules, and to never end up as the teacher who blames students for an ineffective classroom environment. Teachers are responsible for doing the work and correcting problems by teaching students procedures and correcting mistakes when they occur. Some of the suggested goals of these texts that I wanted to pursue with this inquiry included “determining needs of students”

(Cangelosi, 2013, p. 3) and how to actively engage them in the learning environment, as well as “design learning activities” (Cangelosi, 2013, p. 3) to allow for greater collaborative learning and less independent work, with set guidelines everyone in the classroom understood they needed to follow. As in previous articles, “disruptive behaviors” (Cangelosi, 2013, p. 10) were addressed and how teachers fear them in the classroom. It supported my point that I wanted to resolve in this classroom, which was that “unless you deal effectively with non-disruptive off task behaviors” (Cangelosi, 2013, p. 10), your transition times and learning goals will suffer.

### **Methodology: Collecting and Analyzing the Data**

During the first few weeks of internship, I realized that always teaching in a whole group, lecture style of instruction failed to always engage students. As I taught different science standards through PowerPoint and student notes, I realized that it wasn't enjoyable for me as the teacher, and especially not for the students in this format. According to a quote taken from Frondeville (2009), “When 90 to 100 percent of my students are excitedly engaged in their tasks and asking deep and interesting questions, I experience joy, and joy is a lot less tiring than the frustration that comes with student apathy” (para. 3). Consequently, I believe that the classroom environment needs to be one where students enjoy learning and engaging in their learning with other students. I wanted to incorporate more engagement-centered instruction because in the different science and math lessons taught to the fifth graders, I experienced the difference in the classroom environment between when students are engaged and when students are bored, and the success of the lesson really seems to depend on student interest and engagement. I recognized that I needed a more discovery-based way of teaching in addition to direct instruction in order to motivate students to participate and to have students engaged in tasks and interested in learning.

To explore student engagement, I collected several types of data in the classroom throughout the semester. These types of data included student interviews and surveys, student work, field notes and observations, and reflections on lessons. I also dialogued with a critical friend, my university supervisor. Some of these methods were used frequently throughout the inquiry process, while others were utilized at specific points in the semester.

### **Interviews**

The first week, I conducted a student interview with six students and asked them what they enjoy about math and science instruction, and what they thought could be improved. By collecting initial student thoughts regarding lesson

presentation in the classroom, I was able to find an important starting point in the inquiry to see how I could make the lessons more engaging to this particular group of students. Student interviews are a method of data collection that I was familiar with from courses taught at my University and seemed appropriate in collecting the data needed to plan the inquiry. Five of the students interviewed seemed to enjoy most math and science lessons, but the lessons could have been more engaging and enjoyable than they were. One student stated mostly how math is difficult for her, and how fifth grade math is different than the math she learned last year. Based on this data, I concluded that I needed to try to make these lessons more engaging, but keep the same overall lesson format that students were used to. I was able to take this information and brainstorm possible solutions to try in future lessons. I believe it is important to keep in mind what your students' interests are and what they will enjoy when planning lessons for higher levels of engagement. I concluded that I needed to incorporate more opportunities for age-appropriate levels of group work, movement, and creativity within my lessons.

### **Field Notes**

Every week, I summarized what I observed in the classroom and questioned how I could improve my practice the next week. Field notes were important to the inquiry process because starting the first week of final internship, I taught all subjects, so I had to collect data while delivering instruction. I used results from the field notes to reflect to determine if I was on the right track as I went through the inquiry process. In the classroom, I looked for evidence that my methods were working such as student time on task, student engagement during lessons, and quality of student work. Additionally, I took photos that related to the inquiry. While the field notes showed the engagement level of students during the lesson based from observing if students were on task at different points throughout the lesson, the photos of student work would reinforce that their understanding of the objective was met and that working in groups helped them meet that objective. When formatively analyzing the field notes, I was able to determine how I needed to proceed. When analyzing these different types of data, I discovered that the collection methods provided similar results, helping to triangulate my data.

I also collected data through direct observation. To promote student engagement in science, students spent three days creating a poster answering questions about the atmosphere. Since I had been working with these students from the beginning of the year, I knew the students would be interested in either creatively putting together a poster presentation or being able to use their devices to research the questions. Additionally, Strong, Silver, and Robinson (1995) stated

“engaging work, respondents said, was work that stimulated their curiosity, permitted them to express their creativity, and fostered positive relationships with others” (p. 8), which prompted me to give the students the ability to be creative, work with other students, and research what they needed to find.

Students researched questions about the atmosphere in their groups and had to work together in groups of four to complete the poster. I observed this atmosphere research kept cooperative groups actively engaged throughout the three days spent on this activity. I focused my gaze on observing each student’s time on task, and monitoring the group conversations. I kept observational notes on which students stayed on task well throughout the activity, and those who had some difficulty.

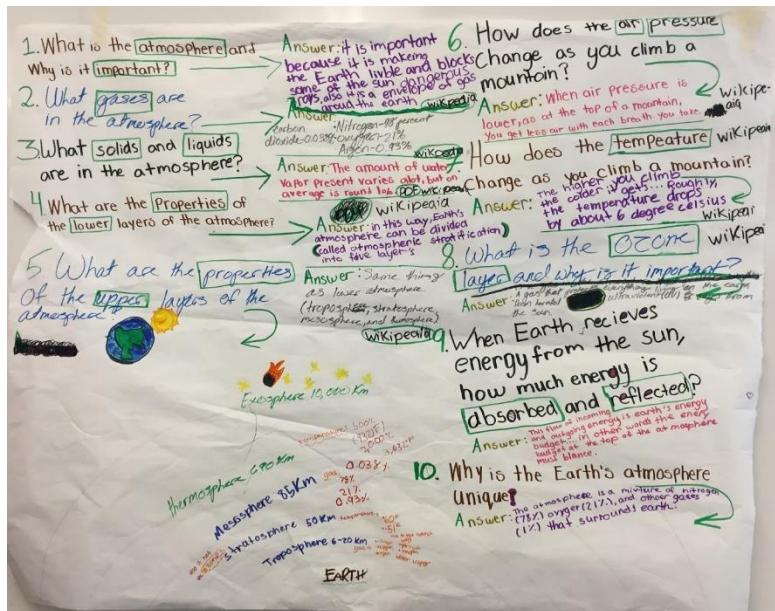


Figure 1. Atmosphere Activity Poster

**Student Work.** At the start of the semester, I incorporated the CUBES strategy for understanding word problems for students to utilize in math, and I gathered student work as pictured in the worksheet below. The CUBES strategy of mathematic problem solving is C- circling key numbers, U- underline the question, B- box the math actin work, E- evaluate and eliminate and S- show your work. This strategy helped keep all students on task because it gave struggling students a consistent format with steps demonstrating how to solve word problems, and it kept the students who like to work fast from making simple mistakes. I made a connection to the work of Stephens (2016) when he recommends that teachers “create educational experiences for students that are challenging and enriching and that extend their academic abilities” (para. 14). Challenging activities can mean enrichment for some learners in the classroom, while giving students the resources to solve challenging math problems can also extend their abilities.

**Word Problem CUBES!**

<p><b>C</b>ircle Key Numbers and Units: What do I notice about this problem?</p>	<p><b>U</b>nderline the Question: What am I being asked to solve?</p>
<p><b>B</b>ox the Math Action Words: Am I going to add, subtract, multiply, or divide?</p> <p style="text-align: center;">-   +   ×   ÷</p> <p>How do you know?</p>	<p><b>E</b>valuate and Eliminate: What steps do I take?</p> <p>What information do I NOT need?</p>

**S**how your work below and check:

A
B
C
D

Does my answer make sense?  
Explain why the other answers are NOT correct?

Figure 2. Example of CUBES worksheet.

I chose this strategy because a common trend among students was that they had trouble with reading and understanding word problems in math. It wasn't a choice to make math easier for them by taking out the word problems, but I could implement a strategy that, if utilized correctly, would help students read and understand challenging word problems. The CUBES strategy allowed students to successfully work through challenging math problems, and therefore extend their academic abilities and provided all students with resources to help them be successful. Not only were all students expected to follow along as we worked through each problem, they needed to mark the text and be prepared to share with the class what they marked.



Since most of the time when using this strategy the class found the answer to the problem together, all students ended up working through the problem. When working with the CUBES strategy, there were a few students who chose not use it, but many students found it useful and had been successful using it. It kept students engaged because they knew that I would randomly select students to give the information necessary to complete each part, so they actively searched through the math story problem for each piece. This strategy was utilized in every new math lesson taught and the students memorized the steps and used them correctly.

Towards the end of the semester, an important addition made to the inquiry was a lesson involving students' learning about the characteristics of plants and animals. After some reading and discussion on the differences, students were given the opportunity to create their own "planimal" based on their learning about plant and animal characteristics. They used a spinner to randomly select the characteristic, and they had to work it into their design. In the first half of the lesson, I observed that most students were only moderately engaged in the reading and the discussion. However, once I started to explain about the planimals, the students' eyes lit up and they got so excited! They were required to draw their planimal based on the attributes they randomly spun, but they could be creative about the planimal look otherwise. When I studied the finished planimals, I could see that the students put a lot of effort into it based on the quality of the drawings, inclusion of all of the characteristics for their planimal, and creative interpretations they took with them. This was a fun, engaging activity where students still learned a lot about the differences between plants and animals.

### **Reflecting on my Progress**

Throughout these lessons I engaged in reflection related to whether students were actively engaged in the lesson, and if not, how I could change the lesson to motivate them to stay on task and learn. In these reflections, I analyzed student work, observational notes, and data collected from the lessons taught. Additionally, I took notes on occasions when group engagement levels were reduced for reasons like too much talking or problems among students. Sometimes, it took a few tries to move students to places where everyone worked well together, but by the end of the internship the groupings worked and I observed students to be more engaged and ready to learn.

As I stated previously, I began the semester by interviewing several students, who all said that they liked the way that the lessons are taught, but some responses hinted that lessons weren't as engaging as they could be. I interviewed my students again after some challenging lessons, and asked students for

anonymous feedback on what may have helped them understand the content and what didn't help them so I could change the lesson next time. I also administered a student survey to see what kinds of activities and interactions the students enjoyed, and how they thought the lessons could be improved.

After looking at the initial results described above, over the course of the next several weeks I attempted to provide students with more “hands on” learning and small group discussions where students could interact with the content in meaningful ways when possible. I attempted to include activities of different ability levels into the lessons. For example, I included a “table texting” activity that specifically allowed for students to interact and draw conclusions on what they understood about climate zones based on their prior knowledge on weather and climate. After creating their own first responses, students were able to write feedback to each other and then use what their peers wrote to them to learn new information and use it to improve their original response. I also taught a science unit about our galaxy in which I presented the content in interactive lessons and projects that engaged the students.

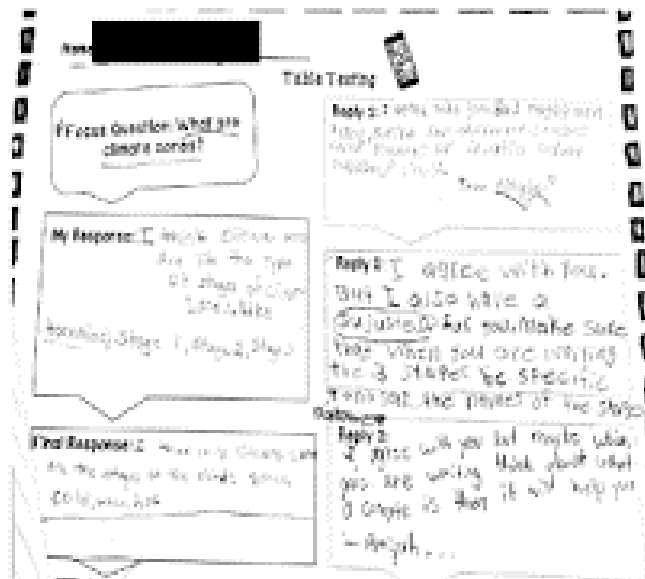


Figure 3. Table Texting Activity Sheet

After trying “hands on” projects, interactive lessons and discussion activities, I engaged in reflection on what worked and which parts of each lesson I could change next time in order to engage more students. There were a few parts of the lesson that did not engage students as much as intended. Although not completely successful in obtaining the results I set out to achieve, I knew what

steps were needed to improve instruction. I planned to take the strategies that worked and incorporate them into future lessons.

### **Dialoguing about the Data: Participating with a Critical Friend**

To probe deeper into the data and challenge each other's assumptions, perceptions, and beliefs as a student teacher and a supervisor, I dialogued with my university supervisor as critical friends. A critical friend is "a trusted a critical friend in self-study is a trusted person who asks provocative questions, provides critique, and takes the time to full understand the context of the work and the outcomes desired by those involved," (Loughran & Brubaker, 2015, p. 257).

Rather than impose or convey one's own views, the role of the critical friend is to assist others in perceiving how they view their practices, in the process striking an appropriate balance between challenge and support (Baskerville & Goldblatt, 2009). As Nilsson (2013) observed, this relationship ideally works in two directions. Therefore, I engaged in critical dialogue through a series of e-mail exchanges, which allowed my supervisor to pose challenging questions, provided time for me to thoughtfully respond, and enabled us to capture the "essence" of the wording used. The discussion occurred after I had collected data and begun to analyze it and determine initial findings.

My supervisor asked me to reflect on how CUBES strategy worked. He also challenged me to reflect on student engagement and other factors that may have contributed to increased engagement during the planimals activity. I realized that providing students with choices helped engage them in learning. In addition, my supervisor asked me to reflect on the inquiry process. I shared that the process helped me better understand the role of assessments and data collection and where to place my focus to create positive impact with my students.

### **Findings from the Inquiry**

As a result of analyzing the data, three significant findings were:

- Providing opportunities for enrichment and review kept learners in my class engaged and on task throughout lessons, because every student was challenged at a level that was appropriate for their learning.
- Instructional strategies that incorporated more opportunities for collaborative small group work into lessons allowed for high levels of student engagement and participation.
- Classroom setup and student seating positively or negatively affected student behavior and engagement during class.

**Finding 1. Providing opportunities for enrichment and review kept learners in my class engaged and on task throughout lessons, because every student was challenged at a level that was appropriate for their learning.**

The CUBES strategy allowed students to successfully work through challenging math problems, and therefore extends their academic abilities and provided all students with resources to help them be successful. Not only were all students expected to follow along as we worked through each problem, they needed to mark the text and be prepared to share with the class what they marked. This helped to engage all learners within the classroom because after a few days of utilizing this strategy, all students were able to underline the question being asked, the numbers in the question, and box the math action word. In addition, when asked to use CUBES, I observed that most students were soon motivated to read through the problem and share with the class what they circled, underlined, and boxed in the problem based on an increase of volunteers raising their hands to participate in class.

Since most of the time when using this strategy the class found the answer to the problem together, all students ended up working through the problem. When working with the CUBES strategy, there were a few students who chose not use it, but many students found it useful and had been successful using it. It kept students engaged because they knew that I would randomly select students to give the information necessary to complete each part, so they actively searched through the math story problem for each piece. This strategy was utilized in every new math lesson taught and the students memorized the steps and used them correctly.

2. Ali has 2 vegetable pizzas that she cuts into eighths. How many  $\frac{1}{8}$ -size pieces does she have?

$2 \div \frac{1}{8} = 2 \times \frac{8}{1} = 16$

3. A baker has 6 loaves of bread. Each loaf weighs 1 pound. He cuts each loaf into thirds. How many  $\frac{1}{3}$ -pound loaves of bread does the chef now have?

$6 \div \frac{1}{3} = 18$

The student work shows two math problems. Problem 2 involves multiplying 2 by 8 to get 16. Problem 3 involves multiplying 6 by 3 to get 18. Both problems have diagrams: two pizzas for problem 2 and six loaves for problem 3. The numbers 2, 8, 16, 6, 3, and 18 are circled, and the action words 'cuts into' and 'cuts' are boxed.

Figure 4. Example of student work using CUBES strategy

In addition, in lessons such as the planimals activity, in which each student could independently create their animal before sharing with the group, was also effective. I believe this was because students could make choices based on what they knew or wanted to learn about plants and animals. I noticed this activity engaged 23 out of 25 students, including five students who sometimes have trouble staying engaged in direct teacher instruction.

**Finding 2. Instructional strategies that incorporated more opportunities for collaborative small group work into lessons allowed for high levels of student engagement and participation.**

I learned that instructional strategies such as incorporating more opportunities for collaborative small group work in my lessons allowed for higher levels of student engagement and participation. Strong, Silver, and Robinson (1995) state that “engaging work, respondents said, was work that stimulated their curiosity, permitted them to express their creativity, and fostered positive relationships with others” (p. 8). By reading research done by others in the past on the topic of student engagement, this quote among others inspired me to try to incorporate more engaging activities into the classroom. According to the data collected and analyzed, I found similar results within this internship classroom.

One example that supports this statement is the data from my supervisor observation which demonstrated that increased student collaboration on activities increased the levels of student engagement within those activities. Students created their own planimals, by combining plant and animal characteristics and were required to compare the plant and animal characteristics that they chose and researched with the other planimals completed by their group members. Students were immediately excited and engaged throughout this activity based on comparing and contrasting animal and plant characteristics.

I also observed the amount of time on task the groups spent on the activity, and whether or not their conversations stayed on task. I found that when students collaborated on a high interest topic, they took the time to create their planimals and answer the responses afterwards. There was a lot of excitement within the groups, especially when the characteristics of their planimals were different. I know this because when students talked amongst themselves they were discussing their planimals with lots of enthusiasm in their voices.

When I studied the finished planimals, I could ascertain that the students put a lot of effort into it based on the quality of the drawings, inclusion of all of the characteristics for their planimal, and creative interpretations they took with them. This was a fun, engaging activity where students still learned a lot about the

differences between plants and animals. Some examples of completed planimals can be found below.



*Figure 5.* Examples of completed planimals.

In this lesson in particular, four out of the six groups didn't have any issues completing the assignment together, but the other two had some problems working as a team. A problem I saw was in one of the groups where three girls did everything and a boy didn't participate. If to do this lesson again, I would assign roles that each student had to meet in order for the group to finish their work to make sure all students were accountable. I considered this activity successful in keeping students engaged and mainly on task as a whole compared to when I taught in the front of the classroom while students took notes. Connecting back to the earlier statement from Strong, Silver, and Robinson (1995), I concluded that giving students the opportunity to work with others in the classroom on something interesting and creative can keep them engaged for longer periods of time.

The surveys also supported this statement as most of the answers received in the survey were expected, including responses that students enjoyed the planimals lesson where students created their own planimal. I expected that the responses would include activities where students got to be creative and more "hands on" in the lesson, and most responses supported my expectation. However, one response that I didn't expect was from a student who really enjoyed the PowerPoint review they did weekly in preparation for the science state test. He went into more detail in his response that he enjoyed working with his group to come up with an answer, which actually connected back to the goal of increasing student engagement in the classroom since students worked together to find an

answer. Overall, based on their responses I could tell that I was on the right track with my inquiry.

**Finding 3. Classroom setup and group seating positively or negatively affected student behavior and engagement during class.**

In addition to collaborative groups increasing engagement, this arrangement also allowed me to provide students who were struggling with a concept with small group time during math in particular. From my observations, I believed that engaging students in a small group review helped to keep these students on task because they had direct help, while the rest of the students could complete their work independently I noticed that the placement of students in the class affected student engagement in the class. Even when using engaging teaching strategies, if students didn't work well together, they didn't learn. When students are given the opportunity to sit in groups in the classroom environment, they have the potential to collaborate and work together on different activities throughout the learning process.

When grouping students, I found through trial and error within the atmosphere and table texting lessons that it was beneficial to group students so students who were struggling were surrounded by students who could help them or encourage them to work hard. Students were mostly grouped in tables of four, with one group of two. Within each group, I placed struggling students between students who could help them and also placed students who might exhibit negative behaviors next to students who would ask them to stop. This was also effective with a student who had struggled a bit with the planimals activity. Another student at her table got up and went over to her and explained that they could create their planimal however they wanted, and to use her imagination as long as she included at least have the 6 characteristics that they recorded on their papers. After she understood the expectations the second student explained to her, she was able to continue working and successfully completed the planimals activity. She created a great representation of a planimal that had both animal and plant characteristics, and her questions were answered by working with other students. If she hadn't been sitting near another student who knew what to do, she might've spent more time confused on what the task required her to do instead of having the time to put effort into her planimal.

Another example that helped me realize that classroom arrangement affects student engagement is that sometimes it is important to move students who may not be working successfully with each other. When there are problems between students, it can affect their work and even the work of the other members at the group. An example of when it made sense to move a student elsewhere was

when I observed a student started exhibiting negative behaviors in the classroom and the girls at his table seemed to encourage it with reactions like smiling and giggling when he would do so. After moving him to a table at the other side of the room with students who didn't care, the girls as well as the student who was moved seemed to stay more on task during lessons based on the quality of assignments completed after the move, such as the Planimals activity and science quiz scores. By strategically moving this student, I found that he participated more in class discussions and not as many off task behaviors were found in the classroom at all. When this student was originally moved to the seat, the girls at the table initially had very good grades and weren't easily distracted. After sitting next to him for a long period of time, the girls began to encourage his off-task behavior and become off task themselves, affecting their grades. When this student, both girls at the table have had an increase in their science quiz scores.

### **Discussion and Implications**

By engaging in the inquiry process, I discovered that my students were curious and loved to learn when they were able to solve problems or be creative. The independent practice part of my science lesson on the atmosphere enabled students to incorporate research using their devices with a creative poster activity that got the students thinking and working together cooperatively. Teaching math lessons to fifth graders has helped me understand that some learners can understand math by watching the teacher model problem solving strategies on the board and some students need a small group setting where they can practice the steps with more support and practice. The CUBES strategy of problem solving really helped students organize their thoughts and better understand how to use their problem solving strategies to successfully and confidently tackle the difficult FSA-style problems and be able to solve them. According to a survey given to students regarding the usefulness of the CUBES strategy, 78% of students thought that using the CUBES strategy helped them solve FSA style problems which made me believe that this was a successful instructional strategy for my students.

Stephens (2016) stated, "Create educational experiences for students that are challenging and enriching and that extend their academic abilities" (para. 14). The curriculum needs to be taught in a way that is interesting to students and is also challenging at their current ability level. I learned that planning and teaching more engaging lessons doesn't always successfully hold the interest of all learners, since it isn't always a given that students will focus in class. To keep more students engaged, much more needs to go into the classroom environment than just planning interesting lessons. Some students have personalities that require careful consideration concerning where they are seated in the classroom so they can continue to focus in class. I had to try different arrangements in class



before I felt that the students could work well together and focus on their learning. Engaging higher learners with project based enrichment is something I wanted to explore within my inquiry but time and the demands of researching and planning these kinds of lessons made it difficult for to undertake this.

By engaging in teacher inquiry, I realized that getting to know and understand students' learning styles and personalities helped me choose teaching strategies that were engaging for them and helped them learn the content. Additionally, what works for one fifth-grade class may not work for another. For example, the CUBES strategy seemed to be more effective in the fifth- grade class that struggled more with math, because they needed strategies to figure out what word problems were asking. When reflecting on student tests from the last two chapters in math, more students attempted and successfully used the CUBES strategy in the afternoon class than in my morning class. It is important to know how your particular class learns and to establish a positive classroom environment that allows all students to become successful and confident learners.

If I teach fifth grade in the future, I can retain what I learned in this inquiry process to the classroom but need to remember that the students may not have similar learning needs. Strong, Silver and Robinson (1995) state that “engaging work, respondents said, was work that stimulated their curiosity, permitted them to express their creativity, and fostered positive relationships with others” (para. 3). This inquiry has affected my teaching practice because I’m able to “think on my feet” while teaching, and if something needs to be changed based on how the students are reacting to the lesson, I’m comfortable making those changes. Before this inquiry process, I wouldn’t have the confidence to quickly modify lessons. A new wondering that emerged from this inquiry is: how could the use and implementation of technology benefit student learning? Due to limitations of technology at my internship school, I didn’t get the chance to implement technology beyond helping students do research during bring your own device (BYOD) days. Since the students in schools today grow up with technology all around them, I now wonder what benefits would there be if these technologies were available to them in school and how will this impact how students learn and practice?

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