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Student Engagement: What is the Best Way to Motivate Students in the Secondary Classroom?

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Abstract

In the secondary education classroom, the question often arises: How do we engage our students? Often, we are faced with heads down on desks, glassy eyes, and students who don't remember content taught to them the day before. How can we engage them? How can we motivate them to want to learn?

In this study, I will examine four procedures determined by educators to enhance student engagement. In each section, I will discuss the procedure, discuss what the procedure's steps are and how to approach it, and share a way I have utilized this procedure and reflect on its effectiveness. Finally, I will use my studies to decide what methods of enforcing student engagement in the secondary classroom are effective, and which ones need further research to determine effectiveness.

Introduction: What is Engagement?

Student engagement encompasses all the ways in which students interact with school or school-related activities throughout their time in the school system. More specifically, student engagement is made up of three individual facets: behavioral engagement, emotional engagement, and cognitive engagement (Lester, 2013). Behavioral engagement makes up all the ways in which students are involved in school and is defined by students' ability to follow class rules, their involvement in the classroom, and their participation in extracurricular activities. Emotional engagement focuses more on students' attitudes in relation to schooling and is categorized by feelings of interest or boredom in a class, feelings toward a teacher or class, and feelings of belongingness in the school. Finally, cognitive engagement is defined by students' own self-investment in learning and their thinking involved in learning.

Most teachers tend to focus on only cognitive engagement: If a student is paying attention, then they are labeled as "engaged," and a student who doesn't exhibit traditional effort is labeled as "disengaged." However, as this definition reveals, there are other factors at play that may impact student engagement. Grant-Skiba and Orwa (2018) discuss this further in their revelation of different types of disengaged students. There are "intermittent workers or students who seem very hard at work when teachers are close by, but find other things to do the minute teachers move away; easy riders are those students who work as slowly as possible, erasing and re-writing and always 'thinking'; ghost students who may slip through the cracks and manage to get nothing done lessons after lesson if teachers are not vigilant" (p. *i*).

In this identification, it is evident that teachers cannot just use academic cues as an indicator of student engagement. Instead, it is important that teachers watch for other telltale signs of disengagement, such as the ones above, to ensure that no student is getting left behind.

Another framework used to describe engagement is developed by Brian Cambourne (1995). The figure below (Figure 1) describes his framework.

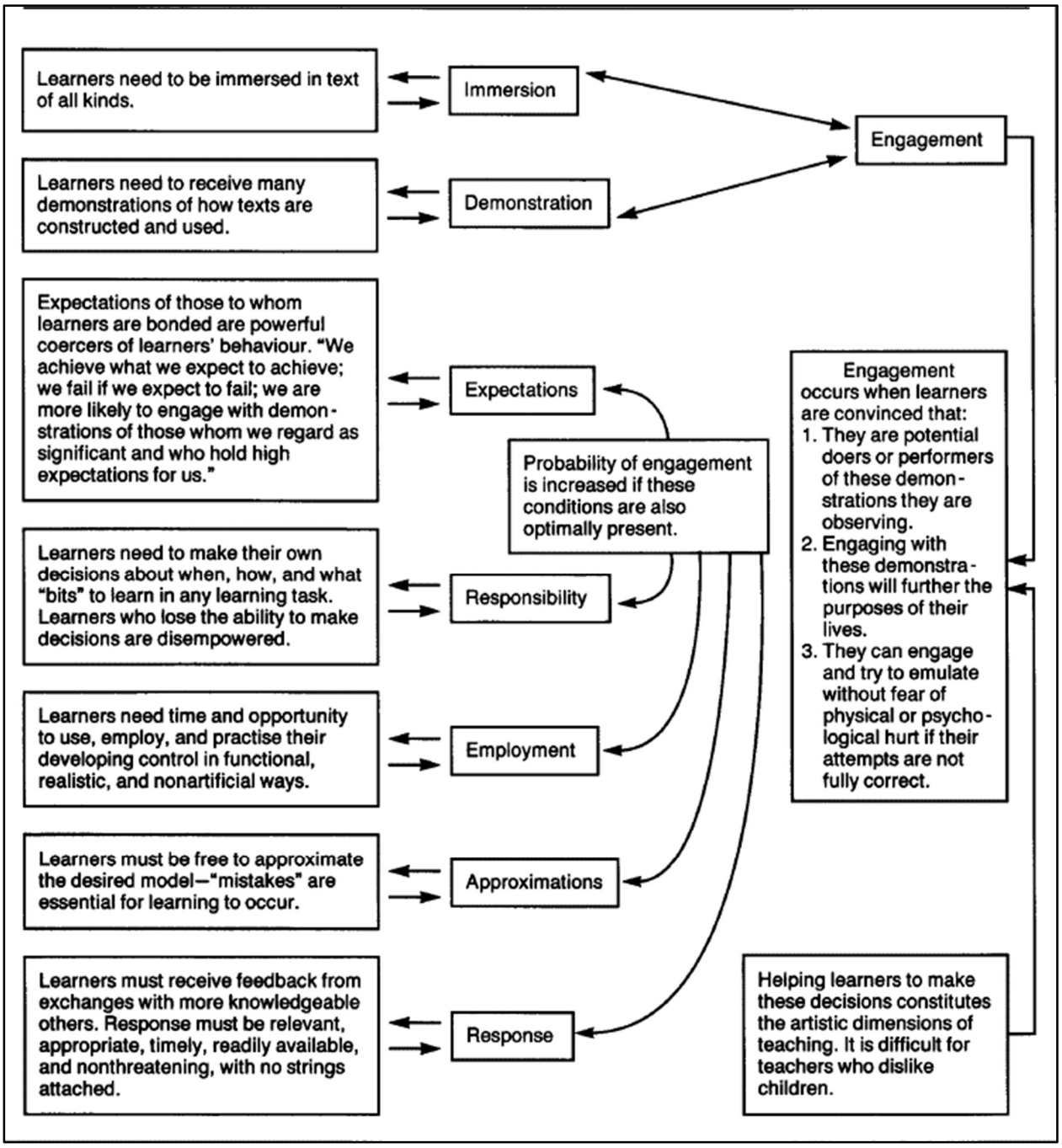

Figure 1: Cambourne's Engagement Framework

According to Cambourne (1995), there are seven conditions that support student engagement: immersion, demonstration, expectations, responsibility, employment, approximations, and response. All of these are described in full in the figure above.

The guiding question here is: Why is student engagement a challenge? That is, why should teachers be so vigilant about student engagement? Firstly, teachers are the ones responsible for student growth and development. According to Lester (2013), "the quality and quantity of student interactions directly influences student levels of learning and development."

According to the definition of engagement, these interactions encompass students' emotional and behavioral engagement, and thus has a direct impact on student growth. So, the first reason teachers should care about the problem of student engagement is due to the impact it has on students.

Secondly, student engagement determines their overall quality of learning: If students care about the mathematics they are learning, for example, they are far more likely to remember what they learned on a standardized test. Standardized tests make a huge impact on the path students take, and their long-term knowledge of such concepts introduced in preparation for these tests can greatly benefit them. Then, if a student develops motivation to learn about a topic, they are more likely to develop long-term understanding.

So, how can we cultivate student engagement in our classrooms? In the following sections, I will introduce four procedures outlined by classroom experts. After discussion of what each procedure is, I will utilize Lester's framework to fully discuss how each procedure fulfills cognitive, emotional, and/or behavioral engagement in the classroom. Finally, I will use Cambourne's framework to discuss my own work using this procedure and give an overall idea of what type of engagement each procedure fulfills.

Procedures

Procedure 1: School-Wide Social-Emotional Learning

Description of the Procedure

Social-emotional learning, or SEL, is a process in which learners cultivate skills that will enhance their social relationships and attitudes both in and out of school. There are five competencies associated with SEL: self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (Yang, 2018). Yang recommends that the procedure of SEL is adopted as a school-wide learning target, focusing on three key factors: teaching of social-emotional competencies (TSEC), teacher-student relationships, and student-student relationships. The benefit to adopting a school-wide approach is due to consistency: "By creating a supportive context, this systematic approach introduces and maintains effective SEL programming for all students and moves schools away from piecemeal and fragmented approaches of SEL to one that is comprehensive and coordinated in both planning and implementation" (Yang, 2018). That is, students who are all learning the same concepts are more likely to benefit from such an implementation, and student engagement levels throughout the whole school will go up.

Now, we will examine the three factors that SEL focuses on: TSEC, teacher-student relationships, and student-student relationships.

Teaching of Social-Emotional Competencies

Teaching students social and emotional competencies involves educating students on what good interactions look like. Schools take time to teach students valuable social and emotional skills, which, in turn, helps students to form relationships with others, such as peers and teachers. Yang (2018) discusses various studies that have shown the success of implementation. For example, "Durlak et. al. (2011) found that SEL interventions significantly improved students' attachment and attitudes toward school, leading to better social attendance, higher motivation, and higher morale" (p. 46). However, Yang also emphasizes that teacher

motivation in educating students in these competencies is key in increasing student engagement in TSEC, which in turn helps to increase overall engagement.

Teacher-Student Relationships

There has been much discussion and theoretical debate on the important relationships between teachers and their students. Roorda et. al. (2017) examines two theories in her discussion of this relationship: social-motivational theories and the extended attachment perspective.

Social-motivational theories say that students will "become engaged in schoolwork in their basic psychological needs for relatedness, competence, and autonomy are met" (Roorda, 2017, p. 240). Teachers can support this theory, then, by establishing a caring relationship with the student, establishing clear expectations in the classroom, and giving students freedom of choice. Extended attachment perspective states that "teacher-student relationships that are characterized by high levels of closeness and low levels of conflict will help children feel emotionally secure" (Roorda, 2017, p. 240). Both theories detail the importance of students feeling safe and secure with their teacher, and that this security will increase student motivation and engagement in the classroom.

Another way of thinking about this relationship is in terms of belonging. Students walk into a classroom on the first day, nervous, and simply want to feel as if they belong. The relationship a student establishes with a teacher may not be enough to impact the social risk they feel, which is why the last component of SEL, student-student relationships, is so important.

Student-Student Relationships

According to Horn (2017), belongingness is the key to initiating student engagement, and this crucial piece is based on student-student relationships. Horn writes, "Even if a teacher welcomes each student with a smile and asks a question about how things are going, other students' insults or intimidation can contribute to a negative classroom climate. To support belongingness, then, teachers need to do more than forge strong relationships. They need to establish and maintain clear norms and expectations about how students treat each other." Then, not only is a teacher responsible for ensuring their own behavior allows students to feel safe and secure, they also must teach peers how to respect one another, which is where TSEC comes into play.

There are other theories that showcase the importance of belongingness in the classroom as well: Social-determination theory maintains that when students cultivate positive relationships with their peers, they are more likely to be engaged in school (Yang, 2018). Additionally, social control theory states "when students feel they are more attached to their fellow students, they are more likely to subscribe to the academic behaviors and attitudes that their school community advocates" (Yang, 2018).

With these theories and discussions in mind, then, it is evident that peer relationships are a final fundamental part of engagement, and contribute to the methodology of SEL.

How Do We Implement SEL?

The first thing Yang outlines in her analysis is the importance of getting the whole school involved in the implementation of SEL. She writes, "Some important school factors that help establish a school-wide support system include cooperation and communication among teachers, teacher training, clear procedures and structures, support from the school principal, a well-

defined school policy or vision, a caring and inviting school climate, and integration of SEL into the general curriculum and daily teaching practices" (Yang, 2018, p. 58). So, the first step of implementation is getting the whole school involved through cooperation, collaboration, training, and support.

Horn outlines some key ways of establishing belongingness in the classroom and encouraging positive student-student relationships from the beginning. The ways she discusses are creating an inviting classroom, establishing a classroom environment that is caring and supportive, developing routines that build cooperation, and advocating for rejected children (Horn, 2017). She uses the examples of other teachers to show ways of establishing these classroom norms: For example, one teacher created a "dog wall," where students can show others pictures of their pets, to create an inviting classroom. Another teacher simply reminded us of the importance of caring for forgotten students by calling the student's home when he was injured at school. From here, the student tried to establish a relationship with his teacher (Horn, 2017).

Finally, in their comprehensive student of the effect of teacher-student relationships on engagement, Roorda et. al. (2017) writes, "affective teacher-student relationships are just as important for the engagement and achievement of secondary school students as for primary school students, and…positive relationships are even more important for secondary school students' engagement than for that of primary school students" (p. 240). This means, then, that teachers have more of an impact than they realize on the engagement of their students. Roorda (2017) suggests making efforts toward such a relationship from the beginning, through gestures such as learning students' names.

In sum, then, if the whole school is involved in teaching students how to communicate with one another and develop positive relationships, and teacher-student and student-student relationships reflect this learning, then SEL could be an avenue toward increased student engagement.

How Does SEL Promote Engagement?

As described above, SEL promotes teaching students valuable ways of communicating with respect and consideration for others. In this teaching, students learn what good student-student interactions and what good student-teacher interactions look like. According to Lester's (2013) framework, this engages students emotionally and behaviorally.

Firstly, students are engaged emotionally in that they form positive relationships with teachers and with fellow students. A big part of students' engagement experience at school is determined by their social relationships. When these are given proper attention at school and are built in a positive way, this increases student enjoyment and thus promotes engagement.

Secondly, students are engaged behaviorally in that they are given clear expectations for rules they are expected to follow, ways in which they are supposed to act, and ways in which they are supposed to participate. Students are given clear guidelines in how to interact positively with their peers, which reinforces school rules and expectations for student behavior. Additionally, students form relationships with others, which leads them to participate further in school activities. In this way, then, SEL promotes Lester's emotional and behavioral engagement.

Discussion: My Experience with SEL and Cultivating Relationships

Activities That I Implemented

In my student teaching placement, I took a lot of time in getting to know the students I was working with as individuals rather than just as learners. The first activity we (me and my cooperating teacher) implemented was a Google Sketch: Following examples from Google's annual contest, "Doodle 4 Google," we had students design a "doodle" that described them. This was a wonderful way to let us know unique facts about students that distinguished them as individuals rather than learners. We also had them write notecards telling us if they were right or left-handed, how they felt about math (since I student taught in a math classroom), where they preferred to sit in class, and if there was anyone they preferred not to sit by. This allowed us to start teaching positive interactions from the beginning, and to promote good student-student relationships.

Finally, I implemented good teacher-student relationships by simply making an effort to get to know students. This could be as little as saying "hello" to every student by name as they walked in the door, or as large as taking the first few minutes of class to get everyone to tell me about their weekend. These small activities went a long way, and I formed wonderful relationships with students by showing them I cared from the very beginning.

My Experience in Relation to Cambourne's Framework

The three areas of Cambourne's (1995) framework that these activities utilized to support student engagement were immersion, demonstration, and response. I engaged students through immersion by introducing them to a task that required a different kind of engagement: Rather than having students immediately jump into mathematics material, I took the time to immerse them a "new text," which in this example, was art. I also engaged students through demonstration by showing them what positive interactions looked like, as exemplified by my welcomes and my conversations with students. This allowed students to follow my example in discussion with myself, my cooperating teacher, and with one another, thus promoting positive peer relationships. Finally, I engaged students through response by giving them the chance to be honest with me as well as conversing with them as individuals. This allowed them to see what good teacher-student relationships looked like and helped to engage them both behaviorally and emotionally in class from the very beginning.

Procedure 2: Continuous assessment

Description of the Procedure

Naomi Holmes (2018) discusses two types of learning that students participate in during their time in the classroom: surface and deep. "Surface learning aims to meet course requirements with minimal effort, for example, memorizing facts without understanding, while deep learning aims to engage with the task meaningfully with a focus on understanding underling theories and principles" (Holmes, 2018, p. 24). Holmes proposes the use of continuous assessment to enforce deep learning in students.

Holmes defines continuous assessment as "the use of tests over a learning unit, and the accumulation of results in a final grade" (Holmes, 2018, p. 25). Most educators refer to such assessment as formative assessment, where learners are assessed informally on their knowledge of learning targets throughout the unit to fuel instruction.

To test this theory, Holmes created three groups: Module A, where students were assessed continuously throughout the unit, and control groups Modules B and C, where students were assessed traditionally. Holmes (2018) writes, "The introduction of continuous assessment to Module A seems to have increased the total engagement as well as ensuring that students

engage throughout the year…In the modules with traditional assessments (Modules B and C), it I clear that student engagement peaked a few times throughout the year (the days before the assessment deadlines)" (p. 30). This, then, shows that continuous assessment fosters more engagement than traditional assessment.

The other benefit of continuous assessment is its adherence to competence. Competence is defined as "the need to be successful in meeting goals and in interacting with the environment" (Horn, 2017). Continuous assessment meets this standard because it allows students to continue to assess and meet their own learning goals and interact with these goals in a low-stakes way. So, now that we know what continuous assessment is, how do we implement it?

How Do We Implement Continuous Assessment?

Continuous assessment can occur in a myriad of different ways: through quick paper check-ins, through online platforms that allow formative assessment, or through warm-ups to check student understanding. These are just a few of the ways that teachers can implement continuous assessment.

The key to implementation is using these assessments to drive future instruction. That is, teachers should be examining the results of these assessments and using them to figure out what students understand and what needs to be clarified. When teachers use this tool to not only check understanding of students, but to also check their teaching, the classroom becomes a better learning environment for everyone involved.

How Does Continuous Assessment Promote Engagement?

According to Lester's (2013) framework, continuous assessment promotes engagement in its implementation of cognitive engagement. Continuous assessment keeps students accountable for their own learning and understanding and requires students to engage with what they are learning on a regular basis. In this way, then, students are self-involved in their own learning, and thus are cognitively engaged.

Discussion: How I Have Utilized Continuous Assessment

Activities That I Implemented

In my student teaching placement, we (my cooperating teacher and I) utilized continuous assessment constantly. We used three different modes of assessment: quick checks, which are three-question, low-stake assessments; online platforms and games; and Mathstarters, or warm-ups.

Quick Checks

Quick checks occurred at the end of our teaching of each section, and contained two parts: A and B. Each part had three to four questions that summed up the contents of the section. Students took the quick check and were allowed help from a teacher or their notes if necessary, but no help from their peers. They would complete part A only first, turn it in, and receive feedback. If a student received 100% on this first part, they were done and didn't have to do part B. If a student got a question or two wrong and wanted to boost their score, they would do the problems they got incorrect on B, re-turn the quick check in, and get it re-graded.

Quick checks were useful in that they were low-stakes ways for students to try their mastery of a skill, and they provided a good way for us to check and see what misconceptions students had. For example, in our unit on graphing equations of lines, a lot of students were unsure how to graph using tables, and this was evident on their quick checks. This allowed us to

go back and re-teach these concepts to the whole class. Without such an assessment, we never would have known about this misconception until the students had already taken a formal quiz. This, then, shows the powerfulness that such formative assessments have, and shows the impact that they have on both learners and educators.

Online platforms and games

We used online platforms such as Quizziz, Kahoot, and Socrative to create formative, quick activities to see where students were. In a Quizziz, students work on self-paced questions that are multiple choice. We normally assigned these during class, so students could get help if they needed it. Quizziz also has a function where teachers can see how students are doing on questions, and if certain students need to be re-taught a concept.

Kahoot is an in-class game that primarily functions as a competitive, race-like game to quiz students on quick concepts, such as vocabulary. We used this in vocabulary-heavy units, such as the unit on parallel lines and transversals, and to drill concepts such as slope and y-intercept using an equation. While fast-paced learning isn't necessarily the best in all cases, and Kahoot was certainly the option I used the least, I recognized that the fun competitive element increased engagement during class. Students can know if they got a question right or wrong immediately, and the percentage of students who answered a question correctly or incorrectly shows up on the screen. For example, if a question comes up where 30% of students get a question right and the other 60% get it wrong, it's a good opportunity to take a step back and go over the question. So, this is a benefit of using Kahoot.

Finally, Socrative is a platform that students can take low-stakes quizzes on. We mostly used Socrative to function as an exit ticket platform, but on review days, we would create low-stakes quizzes that students could take. Much like Quizziz, the results are available for us to see immediately, so we knew which students needed to be re-taught, or if the whole class needed re-teaching. We used a Socrative quiz to determine if we needed to move a quiz date once, since we saw that most students were getting 40% or lower on the quiz. This showed us that we needed to take a day to re-teach concepts and allowed us to truly help students to our full potential before giving them a formal assessment.

Mathstarters

We refer to our daily warm-up as a "Mathstarter." Students come in and, for the first few minutes of class, work on a problem on the board or have a discussion. When we were in a particularly difficult section, however, we would use these Mathstarters as an opportunity for formative assessment. I would often give students similar questions to what they had just learned in their notes and have them try and solve the problems on their own. We could then walk around and determine how well students understood the concept. If we saw a lot of raised hands, confused looks, or wrong answers on whiteboards, we would know that we needed to take time to go over this problem. While this isn't always the case with Mathstarters, it sometimes serves to be a very beneficial formative assessment.

My Experience in Relation to Cambourne's Framework

Looking back at Cambourne's (1995) framework, there are three supportive strategies I utilized in my implementation of these activities with continuous assessment: responsibility, employment, and approximations. Firstly, I used responsibility by giving students choice in their quick checks. They had the responsibility to complete this quick check when they felt they were ready to attempt it, and it was their responsibility to redo the quick check if they needed to. In

ability to make decisions, then, students are engaged since they are trusted with a task. Next, I used employment in all these activities by having students engage with material, practice it, and master it. This allowed students to build their confidence and furthered their cognitive engagement. Finally, I utilized approximations by embracing mistakes. Since all these continuous assessment tasks were low-stakes, students could make mistakes and learn from them, rather than make mistakes on a high-stakes assessment and have their grade suffer for it. In this way, then, students were able to engage with material and further their own cognitive engagement.

Procedure 3: Use of Technology

Description of the Procedure

As more and more schools are embracing technology with use of Chromebooks, iPads, and laptops, it is important that teachers are using these resources to engage students in new ways. Johns et. al. (2017) begin their discussion with a look at student engagement and propose four different websites that can be used to promote engagement: Fakebook, Google Classroom, Educreations, and Seesaw.

Campbell et. al. (2015), a group of librarians at Santa Fe College, created more engaging courses for students by utilizing technology. They did this through "flipping" the classroom and through creating online scavenger hunts.

Finally, Deveci et. al. (2018) strove to increase student engagement by providing laptops in schools. While their study focused on engineering students, their results are still relevant in the realm of utilizing technology to foster engagement.

Using all these results, we can develop a clear understanding of how we can use technology to promote engagement in our own classroom.

How Do We Implement Technology in the Classroom?

The first way we can implement technology is by including technology-friendly lessons. Johns et. al. (2017) proposes the use of four educational sites. The first site is Fakebook, published by Classtools. Classtools also publishes templates for puzzles and other engaging activities. One way in which Johns details that Fakebook can be used is in the creation of a fake social media profile adopting the persona of a character students are reading about. Students can then communicate with one another in character, allowing them to dive deeper into an understanding of characterization, as well as build relationships with their peers.

The next site is Google Classroom, which teachers can use to post and grade assignments, provide feedback, and post resources, all of which are accessible to every student. Of course, for this to be ideal, the school would have to be one-to-one in some way, so every student is guaranteed access to the site. Another way in which Classroom could be used is to facilitate parent communication.

Johns next discusses Educreations, which is a screencasting tool that can help both teachers and students to create videos. Johns writes, "With a growing emphasis on performance-based assessment, digital tools are needed to ensure students are provided with opportunities for explaining their knowledge and ideas in a variety of ways" (2017, p. 56). Johns then goes on to explain that students can use this tool to create videos showcasing their knowledge on a topic, giving them the opportunity to exhibit autonomy in their learning as well as engage with the content in a different way.

Finally, Johns discusses Seesaw. Seesaw is an online journal in which teachers can share assignments and projects with parents. This is fundamental since it opens communication with parents and thus increases emotional engagement.

Librarians at the Santa Fe college (Campbell et. al., 2015) used technology to fuel a scavenger hunt for their students. Librarians created an introduction to the library through an online, self-paced forum, which gave students an opportunity to explore all facets of the library. This is an effective means of engagement because it allows students to take charge of their own learning, as well as presents the information in a new, creative way.

The second way we can implement technology is by flipping our classroom. Flipped classrooms are "a pedagogical model in which the typical lecture and homework elements of a course are reversed" (Campbell et. al., 2015, p. 580). That is, students do their homework during the in-class portion of class so that they can receive further help from the teacher, while they accomplish receiving the information from the lecture in some other form at home, such as through a video created by the teacher. The thing that is necessary to flip a classroom is some sort of device, such as a laptop or an iPad, in which students can have access to materials needed to obtain lecture information. Deveci et. al. (2018) describe the benefits of using laptops in the classroom: "Two common themes mentioned by faculty were the positive impact on in-class student motivation and increased teacher-student interaction especially through real-time feedback" (p. 15). Thus, investing in such technological initiatives has shown to be beneficial, and it is fundamental for a flipped classroom.

When the librarians of Santa Fe college investigated flipped classrooms in their implementation of creating literature to help students learn about research, they noticed positive reactions from faculty members: "One faculty member in a survey stated, 'I'll never go back to a standard session. The results were markedly better with a flipped session.' Another said, 'I like the flipped; it seems to focus on the actual library session on helping students research.' All of the faculty members who have had a flipped instruction session intend to continue requesting flipped instead of traditional instruction in the future" (Campbell et. al., 2015, p. 581). This shows the impact of a flipped classroom: Faculty members noticed that their students were more engaged, and they wanted to continue in this implementation due to the engagement. Thus, flipping the classroom is a viable option in utilizing technology to foster student engagement.

How Does Technology Promote Engagement?

Technology use promotes two specific types of engagement in the classroom: Cognitive and behavioral (Lester, 2013). Firstly, technology promotes cognitive engagement by giving students new ways to access new material: Students can interact with lessons in new ways, allowing them to truly access their own understanding and furthering cognitive engagement. Next, technology promotes behavioral engagement by getting students further involved in the classroom. Technology is one of the biggest distractors in the classroom and one of the biggest reasons students don't interact with new material during class. When teachers embrace technology, this gives students a new way to engage in the classroom, and diminishes misbehavior associated with technology. So, technology promotes both cognitive and behavioral engagement.

Discussion: My Experience with a Technology-Friendly Classroom

Activities I Have Utilized

I had the benefit of student teaching in a flipped classroom, and I got to experience first-hand what it is like to teach using these methods. I did teach using traditional methods in my teacher assisting placement, and I have to say, I noticed astonishing differences in student engagement in my traditional placement compared to my flipped placement.

In my traditional placement, many students spent the hour trying to sleep on their desk, pretending to take notes, or just generally messing around. I saw very little engagement in that course, regardless of how I tried to make things more engaging. However, in my flipped placement, most students are attentive and alert, and they are generally excited to learn. I don't have as many heads on desks, and students come into the classroom ready to learn and ask questions because they *know* they are going to get the help that they need.

That being said, let's discuss my own methods in a flipped classroom: Like Johns (2017), I did implement several websites and pieces of technology to flip the classroom. (Note: These were not established by myself but were instead established by my cooperating teacher before I even entered the classroom). The first piece of technology utilized was Edmodo: This is a site like Google Classroom, where teachers can post assignments, notes, answer keys, and documents. I used it to post links to the weekly schedule, the videos I used for notes, and any answer keys that students would need to check their in-class work.

Next, I utilized Explain Everything. Like Educreations described above, this is a whiteboard-based screencast application. I used this to make videos. Each section had 1-3 videos, each of which were between 7-10 minutes long. I would use the notes provided to students in their journals and do examples with them. Each video would focus on specific learning targets that were covered in the next day's in-class assignments, so students were ready to work upon coming into class.

I also had the benefit of working in a school district that was one-to-one with technology, which is why it was possible for students to watch the videos I created at home. Each student was provided an iPad, where they could access my videos via Google Drive. Students would also use their iPads for in-class activities or to access a PDF of the textbook.

Finally, in my experience with technology, I used several sites to further student engagement. I used Desmos, Socrative, Quizlet Live, Kahoot, and Quizziz to create in-class activities for students. I would also utilize fun hands-on activities for students to do as a departure from their textbook problems, such as around-the-room reviews, dice games, or task cards. This promoted student engagement even more since students were excited about new tasks.

My Experience in Relation to Cambourne's Framework

Looking at Cambourne's framework (1995), I have identified two types of support strategies I utilized in my own implementation: immersion and employment. I engaged students using immersion by implementing different kinds of technology, or, as Cambourne defines it, "text." I utilized video, websites, games, and textbooks to create an engaging classroom, and to ensure students were engaging with material in multiple ways. I also engaged students using employment by giving them plenty of opportunities to interact with new material. For example, students, in one class period, could engage with new material through a video, a Desmos activity, a Socrative formative assessment, and an in-class activity. In this way, then, students had multiple ways of employing new learning.

Procedure 4: Whole-Group Response Strategies

Description of the Procedure

In all this talk of student engagement, one group of students is missing: Students who are identified as at-risk or identified as having a learning disability. These students might engage in class utilizing the methods above, but they also may need an additional push to ensure their understanding. For these students, Nagro et. al. (2016) identifies whole-group strategies as ones that "increase opportunities for student participation, engagement, and self-evaluation" (p. 243). These strategies can range from proactive, which promote engagement, to reactive, which are those strategies that respond to disengaged students. Nagro recommends use of proactive strategies, since these are ones that encourage all students to participate.

How Do We Implement Whole-Group Response Strategies?

Nagro et. al. (2016) says, "whole-group response systems create a method by which teachers can track student participation and measure current performance or understanding of all students at the same time through formative assessment" (p. 244). They identify several whole-group response strategies: utilizing hand signals, response cards, and writing.

There are two ways Nagro discusses in which teachers can use hand signals to engage students. The first way is to keep students on task: "Teachers can guide discussion by selecting students who want to share new ideas (students holding up one finger) or add to the current idea (students holding up two fingers)" (Nagro et. al., 2016, p. 244). This is a low-stakes way for students to let the teacher know they wish to contribute to the discussion. Another way is to check student comprehension. There are several ways of doing this, but one example is asking students to rate their understanding of a topic by putting their thumbs up, down, or in middle. This is a good, low-stakes way for students to let teachers know they are having difficulty with a concept without ostracizing them to the whole class.

Nagro et. al. (2016) defines response cards as "students holding up cards with predetermined answers to respond to a teacher-initiated prompt, eliminating the need for verbal or written responding" (p. 245). This allows all students to participate and helps student who struggle with oral or written skills to have access to class problems. One example of utilizing response cards is showing a question on the board with several possible answers, marked A-D. Students can hold up A, B, C, or D, allowing teachers to quickly determine if they need to go over a question without identifying a single student who is having difficulty.

The last strategy identified is written response, which can be utilized through exit tickets or whiteboard answers. "Written responses may be more appropriate than hand signals or response cards in situations where teachers need to accurately capture and make judgments about student learning related to instructional objectives" (Nagro et. al., 2016, p. 246). One example is having students rewrite a vocabulary term in their own words on whiteboards, and then going around to check answers while students discuss their answers with one another. This is a good way to ensure that every student is checked on but allows students to remain comfortable if they are afraid of sharing their answers.

Whole-group response strategies, then, ensure student participation and engagement without requiring students who are afraid to share out their answers.

How Does Whole-Group Response Strategies Promote Engagement?

Looking at Lester's (2013) framework, whole-group response strategies promote both cognitive and emotional engagement. Firstly, these strategies require students to think about their own understanding and to engage with the material they have just learning by answering low-

stakes questions or self-assessing themselves. This, then, allows students to engage with material in new ways, and promotes cognitive engagement. Secondly, these strategies promote emotional engagement by allowing *all* students to engage in their own way. For students who are shy or wary of peer interaction, oral response is difficult. By allowing students to engage using hand signals, cards, or whiteboards, peer pressure is eliminated, and all students can feel comfortable engaging with the material. By being sensitive to each child's comfort level, whole-group response strategies successfully promote emotional engagement.

Discussion: How Have I Used Whole-Group Response Strategies?

Activities I Have Utilized

I have utilized a couple of these strategies in my own classroom during my student teaching placement. I had a few students who were identified as at-risk and were placed in a study hall lab for an hour during the day, a few students who were special education students and were in resource mathematics for an hour during the day, and two students who had previously been in special education but were in their first year in just general education. These students, as the article details (Nagro et. al., 2016), were more fearful of sharing out to their peers, and while their confidence grew as my time there went on, I noticed that they were more likely to participate when I utilized such strategies as outlined above.

Two strategies I have used are hand signals and writing. I used the "thumbs up, thumbs down, thumbs middle" to gauge student understanding when I had to directly teach a concept. I also had students hold up fingers to represent choices when looking at a multiple-choice question: that is, 1 finger represented A, 2 fingers represented B, and so on. I noticed more students were likely to engage with these methods than with a question that needed a verbal response.

Additionally, I used whiteboards, specifically when doing a Mathstarter with students. While students worked on the problem, I could walk around and see their work and answers, and address student misconceptions individually, rather than identify student misconceptions in front of the whole class. This allowed struggling students to get the help they needed while keeping their confidence in mind.

My Experience in Relation to Cambourne's Framework

The main piece of support from Cambourne's (1995) model that I utilized was employment. I used employment namely in that I required students to participate in interacting with material but did so in a low-stakes environment where they felt safe to work with new concepts in their own way. Students were able to self-assess and check their own understanding without feeling pressured by others.

Final Discussion and Reflection

Looking at Lester's framework of cognitive, emotional, and behavioral engagement, I have compiled a final table relating the four procedures I have outlined in this discussion to the three tiers of engagement.

Procedure	Cognitive	Emotional	Behavioral
SEL	X	Engagement utilizing the importance of teacher-student and student-student relationships	Teaching students how to respond in social and emotional situations properly to facilitate good classroom behaviors
Continuous assessment	Teachers engage students by giving low-stakes assessment to check in on progress, ensuring students are building understanding	X	X
Technology	Students engage with technology in school-related topics, finding new ways to learn about material to better facilitate long-term understanding	X	Students are given clear expectations associated with their use of technology, and they are taught how to use technology in productive ways to further their learning.
Whole-group response	Teachers can check in on student understanding in a low-stakes way	Students engage more since they do not feel pressured by their peers	X

Looking at the table above, we can see that all the procedures in combination use emotional, behavioral, and cognitive engagement. However, no one strategy uses all three methods of engagement. This is notable! Successful teachers should engage their students in all three ways and adopt strategies that utilize these three methods. This table, then, shows that, if a teacher is to adopt these procedures, they should be adopted in tandem: That is, teachers should utilize all these procedures to facilitate all three means of engagement in their classrooms.

While it is certainly up to the teacher's discretion to determine how effective these procedures are for his/her classroom, it is fair to say that these procedures are worth trying to increase all levels of engagement in the classroom and to promote deeper learning in the secondary classroom.

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