

12-2016

Engaging All Students: Strategies to Promote Meaningful Learning and Increase Academic Performance

Heidi Haagenson
St. Catherine University

Casandra Schlangen
St. Catherine University

Follow this and additional works at: <https://sophia.stkate.edu/maed>

 Part of the [Education Commons](#)

Recommended Citation

Haagenson, Heidi and Schlangen, Casandra. (2016). Engaging All Students: Strategies to Promote Meaningful Learning and Increase Academic Performance. Retrieved from Sophia, the St. Catherine University repository website: <https://sophia.stkate.edu/maed/197>

This Action Research Project is brought to you for free and open access by the Education at SOPHIA. It has been accepted for inclusion in Masters of Arts in Education Action Research Papers by an authorized administrator of SOPHIA. For more information, please contact amshaw@stkate.edu.

Engaging All Students:
Strategies to Promote Meaningful Learning and Increase Academic Performance

An Action Research Report

By Heidi A. Haagenon and Casandra A. Schlangen

Saint Catherine University

Engaging All Students: Strategies to Promote Meaningful Learning
and Increase Academic Performance

Submitted on November 27, 2016.

in fulfillment of final requirements for the MAED degree

Saint Catherine University

Saint Paul, Minnesota

Advisor _____ Date _____

Abstract

This action research project studied the impact specific engagement strategies had on student academic performance. We conducted this project in two ninth-grade English classes in a suburban high school and two eighth-grade Spanish classes in a suburban middle school both of which were located in a midwestern metropolitan area. During the study, students participated in a variety of engagement strategies aimed at promoting academic excellence: 1) challenge and competition, 2) cooperation and connection, 3) curiosity and controversy, and 4) choice and creativity. The data - provided by course grades, student feedback, student observations, and teacher reflections - showed students were more engaged after implementing specific strategies. Students enjoyed their classes more, paid more attention, tried harder, wanted to learn more, and found the class more meaningful. Future research regarding specific strategies, student profiles, time of day, subject content, and difficulty of the curriculum is recommended to provide additional insight on learning.

Keywords: engagement, instructional strategies, student achievement

By Hollywood standards, a great teacher is someone who can take a group of unmotivated, detached, and apathetic students and transform them into new and improved pupils who are driven, inspired, and hardworking. This fictional teacher faces a mountain of obstacles, but through persistence and magic can inspire his or her students to reach their true potential. In reality, many good teachers have the expertise to plan solid lessons and the finesse to manage classroom behavior in ways that produce average results: students are polite, do their work, earn credit, and move on to the next level of coursework. Great teachers, on the other hand, devise lessons that push students to higher levels of achievement. What exactly is the magical component that gives students the motivation to move beyond passive compliance to deep and meaningful learning?

After ten years of teaching, we have noticed that disengaged students often receive many behavioral and instructional interventions but are still unable to meet basic proficiency standards. Other students reach basic proficiency quickly but have little desire or motivation to move beyond the basics to higher levels of learning. Our goal as educators is to strive for academic excellence - not just behavioral compliance - for our students. Our research aimed to answer this question: what effect will the use of engagement strategies have on student academic performance in eighth-grade Spanish and ninth-grade English courses?

We conducted our research project in two ninth-grade English classes in a suburban high school and two eighth-grade Spanish classes in a suburban middle school both of which were located in a midwestern metropolitan area. Forty-five ninth graders ranging in age from fourteen-fifteen participated in English classes taught in the morning between the hours of 7:25 am and 9:24 am. Of those students, fourteen received special education services; eleven

students received English Language (EL) services, and no students received special accommodations or modifications due to a 504 educational plan. Twenty-five students were female, and twenty students were male. The group was made up of students from a range of races/ethnicities: two students were Asian or Pacific Islander, fifteen students were Black or African American, twelve students were White, twelve students were Hispanic, and four students identified as two or more races/ethnicities. Forty percent of the overall school population qualified for free or reduced lunch at the time of this study.

There were also 48 eighth-grade students participating in the study in a Spanish classroom. We held Spanish classes in the morning between the hours of 7:35 am and 9:20 am. Of those 48 students ranging from thirteen to fourteen years of age, eighteen were students were male, and thirty students were female. Thirty-two students were White, six were Black or African American, one was Hispanic, six were Asian or Pacific Islander, one was American Indian, and two students identified as two or more races/ethnicities. While the majority of students in these two classes did not receive any individual support, one student received special education services, and five students received special accommodations or modifications due to a 504 educational plan. These students attend a middle school where 28% of the overall population receive free or reduced-price lunch at the time of this study.

Review of Literature

Defining Engagement

The concept of engagement is difficult to define. In the literature, researchers have conceded it is tough to agree upon one particular meaning. Silver and Perini (2010) stated that “even the research on engagement shows a kind of conceptual slipperiness, as terms like

participation, attention, interest, and on-task behavior all seem to float interchangeably throughout the literature” (p. 4). Much of the difficulty in defining the term lies in the fact that it has both internal and external components. For students to learn, teachers want them to have both a connection and a commitment to the work. But engagement seems to be even bigger than that. Yazzie-Mintz (2010) explained that “engagement can best be understood as a relationship: between the student and school community, the student and school adults, the student and peers, the student and instruction, and the student and curriculum” (p. 1). This broad definition of engagement provides a big picture meaning of the term but is not particularly useful for identifying engagement in the classroom. Schlechty (2011), a leading researcher on engagement, defined engagement by saying that students who are engaged appear to be committed, persistent, and focused. The combination of those three features - Schlechty (2011) claimed - lead to deeper, more meaningful learning. The question is: how do teachers know if those traits are present in each student?

Because the idea of engagement is so complicated, researchers have also attempted to identify categories of engagement that address its many characteristics. The research team of Yonezawa, Jones, and Joselowsky (2009) explained that “the past decade has provided a wealth of research on engagement. But much of the early engagement research incorporated definitions of engagement from one of three categories: behavioral, cognitive, and emotional” (p. 195). Other researchers focused on the same three categories using similar terminology to describe the types of engagement. Yazzie-Mintz (2010) used the terms cognitive/intellectual/academic engagement, social/behavioral/participatory engagement, and emotional engagement. In this case, cognitive/intellectual/academic engagement was defined as

engagement of the mind, social/behavioral/participatory engagement as engagement of the life of the school, and emotional engagement as engagement of the heart (Yazzie-Mintz, 2010).

Similarly, Conner and Pope (2013) referred to the three areas as affective, behavioral, and cognitive engagement. In their research, Conner and Pope (2013) defined affective engagement as “experiencing interest and enjoyment, behavioral engagement as working hard and exerting mental effort, and cognitive engagement as valuing and caring about the work” (p. 1429). In slight contrast, Jablon and Wilkinson (2006) divided engagement into only two categories: psychological and behavioral. Psychological engagement describes students who display genuine curiosity and enjoyment while learning, whereas behavioral engagement includes features like concentration, investment, enthusiasm, and effort (Jablon & Wilkinson, 2006). These categories provide teachers with more specific traits for observation, but the question remains: how do teachers know whether or not a student is engaged?

In a further attempt to answer the question, Schlechty (2011), Silver and Perini (2010) and Conner and Pope (2013) used another approach - creating hierarchies or levels of engagement. Schlechty (2011) maintained that there are five types of engagement in classrooms: engagement, strategic compliance, ritual compliance, retreatism, and rebellion. According to Schlechty (2011), engagement must be the goal for meaningful learning to take place because both strategic and ritual compliance lead to superficial learning while retreatism and rebellion often result in little or no learning at all. Like Schlechty (2011), Silver and Perini (2010) attempted to label the levels of engagement using six types: deep engagement, engagement, active compliance, passive compliance, periodic compliance, and resistance.

These levels are similar to Schlechty's (2011) five types and provide the same help for teachers in that they differentiate among engagement, compliance, and disengagement.

Conner and Pope (2013) combined the ideas of categories and levels put forth by researchers to create their own list of types. They claimed that by considering that there are three components and each component is either present or not present, then there are really seven different types of engagement (Conner & Pope, 2013). Conner and Pope (2013) provided a typology chart for engagement to help teachers identify seven types of engagement in learners along with a checklist (Appendix A) that shows what those students may need to become fully engaged. It is important for educators to understand the components of engagement to adjust their curriculum and instruction to meet students' needs, and Conner and Pope's (2013) combination of theories is most helpful in answering the question of how teachers know that students are engaged.

Why Engagement Matters

According to Silver and Perini (2010), engaging classrooms lead to student success and academically engaged students learn more and at a deeper level for retention. Silver and Perini (2010) claimed that engaging classrooms lead to higher student achievement. Also, the same researchers found that teachers who create more engaging lessons experience fewer or almost no behavioral problems in their classrooms (Silver & Perini, 2010).

Unfortunately, according to Conner and Pope (2013) student engagement is rare in high school classrooms (as cited in Shernoff, 2010). Conner and Pope (2013) suggested that "40 to 60 percent of high school students are chronically disengaged; they are inattentive, exert little effort, do not complete tasks, and claim to be bored" (p. 1427). This disengagement is more

apparent with older students than with younger students (Jablon & Wilkinson, 2006). Jablon and Wilkinson (2006) argued that early elementary-aged students do not experience the same kind of boredom and inattentiveness as their older peers, and that disengagement increases as children move from elementary to middle school to high school - beginning as early as third grade (as cited in Brewster & Fager, 2000). By the time students reach high school, their low levels of engagement lead to greater and greater issues, often resulting in the highest form of disengagement - dropping out of school (Jablon & Wilkinson, 2006). According to Dudley (2010), “disengagement from school is a worldwide problem, with dropout rates increasing in many countries” (p. 18). While not all teachers work with students with this level of disengagement, dropout rates are a clear indication that schools are not engaging children in the way that is needed.

There are many reasons for and causes of disengagement. Since 2006, the High School Survey of Student Engagement (2010) has collected responses from over 350,000 high school students who claim to be bored because the material is not interesting to them, is not relevant to their lives, is not challenging enough, or is too demanding; other students feel they do not have enough interaction with their teachers and peers (Yazzie-Mintz, 2010). Conner and Pope (2013) claimed that 81% of students explained that they were bored because of the material, while 35% wanted more interpersonal interaction, and another 33% felt that the assignments were not challenging enough. While many schools and teachers have tried to remedy student boredom by introducing technology tools, some research shows that “students have a tendency to use technology as a form of retreatism in the classroom without giving much thought to the potential consequences of their actions” (La Roche & Flanigan, 2013, p. 52). Additionally, the

researchers found that when they asked students to voice their preferences, most students said they were most likely to ask questions and participate appropriately in a low-tech environment with fewer distractions (La Roche & Flanigan, 2013).

Though many students have reasons that motivate them to attend school, those reasons are not enough to keep all students engaged in classrooms where lessons are not well-designed (Yazzie-Mintz, 2010). The question, why do students go to school, is posed in Yazzie-Mintz' (2010) research. According to Yazzie-Mintz (2010), responses from students and teachers fell into three broad categories. For some students, an academic purpose was the primary motivation; these students felt it was important to graduate from high school to pursue college or a career (Yazzie-Mintz, 2010). A second response was a social purpose; some students mainly wanted to be with their friends and caring adults (Yazzie-Mintz, 2010). The last group of students cited family as their motivation for attending school, because they felt as though they owed it to their parents to attend school and meet family expectations for education (Yazzie-Mintz, 2010).

Once these students arrive at school, however, that initial motivation to participate may not be compelling enough to elicit high levels of engagement in the classroom, because as they sit in classes that are not well-designed to be engaging and relevant, these students quickly find themselves bored and unmotivated to learn at a meaningful level (Yazzie-Mintz, 2010). For some students, this leads to compliance and for others, it leads to retreatism and rebellion (Schlechty, 2011). Though educators want to focus on fixing the behavior of disengaged students, the current research on student engagement indicates that the real solution to disengagement lies in the design and delivery of classroom curriculum (Schlechty, 2011).

La Roche and Flanigan (2013) emphasized that “if a student is not meaningfully engaged, then the professor is not doing a good job” (p, 52). La Roche and Flanigan (2013) also contended it is up to educators to recognize opportunities to choose more engaging materials and to create more engaging lessons that address the types of disengagement they observe in their classrooms. Likewise, Silver and Perini (2010) asserted that if teachers do not create lessons that foster students’ commitment to learning, then teachers cannot possibly expect those students to be active learners who master the material at a deep or meaningful level. This same sentiment was echoed by Conner and Pope (2013). They urge educators to interact more with students, choose relevant material, and create challenging lessons in order to provide “effective antidotes to the prevalence of disengagement in secondary school” (Conner & Pope, 2013, p. 1427). Clearly, it is important for teachers to observe their students carefully so that they can reflect and revise their curriculum to meet the needs of the particular children sitting in front of them each year (La Roche & Flanigan, 2013; Conner & Pope, 2013; Silver & Perini, 2010).

Engaging Students

Silver and Perini (2010) claimed that students are powered by four types of engaging activities: 1) challenge and competition, 2) cooperation and connection, 3) curiosity and controversy, and 4) choice and creativity. This entire list is referred to as the 8 Cs (Silver & Perini, 2010). By providing students with a variety of experiences that spark these drives, teachers can create classroom environments that are more engaging for all students (Silver & Perini, 2010).

Mastery drives some students. These students tend to enjoy tasks that allow them to develop new skills and to show what they know, and classroom work that emphasizes competition and challenge is likely to engage these students (Silver and Perini, 2010). Other researchers also acknowledged the importance of challenge and competition for student engagement (Dudley, 2010; Delisle, 2012; Jablon & Wilkinson, 2006; Wiggins & McTighe, 2007). Dudley (2010) stated that appropriate challenges promote deeper learning of new information and lead to better retention of knowledge (as cited in Wiggins & McTighe, 2007). Dudley (2010) also claimed that when students experience difficulty in their learning, they are forced to build their knowledge and find creative solutions to their problems. Delisle (2012) cited complexity as one of his five types of engagement strategies, arguing that when students - especially gifted students - view the work as too easy, they become disinterested and do not engage. Providing appropriate challenge and competition is just one way to boost engagement and help students understand at a deeper level (Silver & Perini, 2010).

Interpersonal work drives other students because they thrive on interaction and feeling valued by others (Silver & Perini, 2010). These students are likely to engage in work that feels relevant and worthwhile because it connects to their own experiences. Activities and tasks that focus on cooperation and connections appeal to the interpersonal drive (Silver & Perini, 2010). Affiliation is one of the ten qualities of engaging work as laid out by Schlechty (2011). Schlechty's (2011) research showed that students need to feel connected to both the curriculum and their peers to participate in the learning. Both Maday (2008) and Fink (2007) encouraged teachers to create real-world, relevant, and authentic tasks that make learning more purposeful for teenagers. Jablon and Wilkinson (2006) listed collaboration and group interaction as two of

the most important characteristics of engaging experiences. In addition, Kaufman et. al. (2008) suggest that as part of a brain-based approach, teachers need to focus on the importance of the social brain and “exploit opportunities for cooperative learning” (p. 53). Not surprisingly, when researchers ask students about the types of activities they enjoy most, the majority are based in interpersonal work (Yazzie-Mintz, 2010). According to Yazzie-Mintz (2010) high school students most preferred three types of activities: discussion/debate, group projects, and role playing. The research is clear that students need to be able to make personal connections to their peers and the curriculum and be given the opportunity to recognize that there is real-world relevance to what they are learning (Silver & Perini, 2010; Schlechty, 2011; Maday, 2008; Fink, 2007; Kaufman et. al., 2008; Yazzie-Mintz, 2010).

Silver and Perini’s (2010) work showed that in addition to mastery and interpersonal work, students are driven by a need for understanding; they love to make sense of big questions, puzzles and gaps in logic, so teachers who want to stimulate this drive can focus on curiosity and controversy. Teenagers, in particular, enjoy participating in conversations around controversial issues and questions that require them to analyze gray areas in an argument (Silver and Perini, 2010). This kind of thinking provides novelty and variety that increase engagement (Schlechty, 2011). Puzzles and challenging questions tap into students’ intrinsic motivation, which leads to less compliance and higher levels of engagement (Schlechty, 2011). According to Jablon and Wilkinson (2006), “Psychologically, engaged learners are intrinsically motivated by curiosity, interest, and enjoyment, and are likely to want to achieve their own intellectual or personal goals” (pg. 12). While we cannot build every lesson around controversy, teachers should still strive to include topics that connect to student’s interests and concerns in lessons and

units (Maday, 2008). By keeping the concepts of curiosity and controversy in mind, teachers can create lessons and units that motivate students to engage in deeper learning and more complex thought (Silver & Perini, 2010; Schlechty, 2011; Jablon & Wilkinson, 2006; Maday, 2008).

Lastly, self-expression motivates some students. Many students - especially teenagers - long to be seen as unique individuals and thrive in situations where they are allowed to “express those kernels within themselves that belong to them and no one else” (Silver and Perini, 2010, p. 8). Teachers can best foster the need for self-expression by creating lessons with choice and creativity in mind. In much of the research, experts point to choice as a key component of engaging curriculum (Jablon & Wilkinson, 2006; Maday, 2008; Wiggins & McTighe, 2007; Delisle, 2012; Dooner, 2010; Yonezawa, Jones, & Joselowsky, 2009). Dudley (2010) encouraged teachers to allow for student choice and personalization in their daily lessons and overarching units (as cited in Wiggins & McTighe, 2007). Similarly, Delisle (2012) stressed the importance of choice in motivating gifted students who often lose interest in one-size-fits-all work. It is also crucial that teachers pay attention to the kinds of choices they provide in class. Dooner (2010) prompted teachers to reflect upon this question: “Are you giving them choices that are relatively superficial, or are you allowing them to make substantive choices that convey to students that you understand and respect the different ways they learn” (p. 35). Teachers who allow students the space to make real choices provide opportunities to learn and show their learning through innovation and imagination. Yonezawa, Jones, and Joselowsky (2009) insisted that engagement “has to do with students’ feelings of competence and mastery in a social context, as well as their sense that the context will offer relationships that support and

value their unique selves” (p. 201). Honoring the individual identity of each student is a powerful way to increase student achievement.

Conclusion

The literature does not suggest one clear path to engagement; however research provides a multitude of ways that teachers can address the different types of disengagement they see in their classrooms (Conner & Pope, 2013; Delisle, 2012; Dudley, 2010; Fink, 2007; Jablon & Wilkinson, 2006; Kaufman et. al., 2008; Maday, 2008; Silver & Perini, 2010). It is incumbent on teachers to observe the students in their classes to determine students’ levels of engagement. They must also recognize the types of engagement that are happening in their classrooms and find ways to spark other forms of engagement that may be lacking. While there is no single strategy or approach that will engage all students, it is clear that “more interactive teaching, coupled with more relevant and rigorous curricula, might be effective antidotes to the prevalence of disengagement in secondary school” (Conner & Pope, 2013, p. 1427). It is up to all teachers to find the right combination of strategies for the students sitting in their particular classrooms. In the next section, we will explain the method used to carry out our research and to collect information.

Description of the Research Process and Methodology

We began our study by collecting background data about and from students. Using transcripts, we determined our students’ previous academic achievement in Spanish or English coursework. Each teacher created a spreadsheet listing the students’ names and the previous one to two semesters of grades in similar courses, depending on the availability of data. The student achievement information helped each of us identify three students who were most at risk

for disengagement based on their poor grades in previous English or Spanish courses. We selected students with the lowest average previous grades and in the case that more than three students emerged in that category, we used our initial observation of students to determine the three students to observe most carefully. Once we identified those select students, daily observations checklists (see Appendix B) were completed for each student throughout the study.

After collecting background data, we gathered the first set of information from students. All students completed the first preferences feedback form in which they provided information on their previous coursework in English and Spanish as well as their preferences for coursework in this year's course. Students were asked to respond to the following questions: 1) Have you liked or disliked your previous courses in Spanish/English? 2) Explain your answer to question 1. 3) How often did you behave or believe the following in that class: I paid attention, I wanted to learn, I tried hard, and I found it meaningful or useful. In addition to the primary response to question three, we asked students to choose from four options: all of the time, most of the time, sometimes, or rarely. 4) What things could your new teacher do to make this class more enjoyable or meaningful? 5) What part of this class do you find most meaningful or how might the information in this class be useful to you? 6) Anything else you want your teacher to know about you or your learning? Except for the third question, all other questions allowed students to write a short answer.

Based on the initial student feedback, we began implementing strategies and tracking data. Each day, our lesson plans focused on at least one type of engagement that students preferred based on the initial feedback we collected. During each lesson, teachers completed

daily observation checklists for each of the three students identified as at-risk in our background research. The checklists (Appendix B) helped us record the date, the lesson content for the day, the level of engagement we observed, and expanded notes to describe the behaviors we observed for each student.

At the end of each day, each teacher also independently completed a Google Form reflection journal based on observations and insights from the lessons taught that day. The journal entry required responses to the following questions: 1) What was the focus of today's lesson? 2) What drive did you focus on when designing this lesson? 3) What activities were part of this lesson? 4) How did the lesson go? 5) How would you rate the percentage of students indicating high levels of engagement? 6) What did you observe or hear that told you students were not engaged? 7) What would you do differently to make this lesson more engaging? 8) Any other thoughts about this lesson? The daily reflections were used to determine the strengths and weaknesses of each day's lesson as well as to inform future lesson planning. Based on the reflections, each teacher decided how to adjust the next day's or week's lessons to boost engagement.

At the end of each week, all students provided additional feedback on strategies used in class and their levels of engagement as well as their preferences for future course design. The student feedback questions (see Appendix C) helped us narrow and choose from the wide variety of strategies that the research recommended. Students provided weekly preferences and feedback using a Google Form in English class and a paper form in Spanish class. The difference in method was due to access to technology and time available. We sought feedback on the four types of instructional strategies in our study: competition/challenge,

controversy/curiosity, collaboration/connection, and creativity/choice. Students were prompted to answer the following questions for the weekly reflection: 1) How focused were you on learning in class this week? 2) How committed were you to learning in class this week? 3) How persistent were you in learning in class this week? 4) How meaningful or valuable was your learning in class this week? 5) If you were teaching the class next week, which types of activities would you include? Students were asked to respond to the first four questions by selecting very, somewhat, or not at all. To answer the fifth question, students received a kid-friendly list of the different engagement strategies from which to choose: competition/challenge, controversy/curiosity, collaboration/connection, and creativity/choice. At the end of each week, we analyzed the student feedback to make instructional adjustments for the following week.

Throughout the entirety of the study, we tracked formative and summative assessment data on each student's progress. We added these scores to the original spreadsheet listing their previous course grades. The combination of their previous grades with the new assessment scores provided us the ability to compare and contrast their achievement in the different settings. In the next section of the paper, we will describe the data we collected as well as the conclusions we were able to draw from our analysis of the data.

Analysis of Data

Initial Feedback

During the first week of our project, we asked students to tell us about their previous experience in their Spanish and English classes. An average of 78.5% of students stated that they were engaged in class all or most of the time. When asked about external indicators like trying hard and paying attention, an average of 82% of students responded that they are

engaged all or most of the time. In comparison, a lower percentage (74%) of students claimed to be internally engaged - finding the work meaningful and useful.

The student responses suggest that many of our students claim to be at least strategically compliant in class; they try to pay attention, and they work hard. However, when it came to indicators of deeper levels of engagement like finding the work meaningful or wanting to learn, students were not as highly engaged.

In the initial survey, students also shared their opinions about their previous experience in Spanish and English courses. In response to the question “Have you liked or disliked your previous classes in Spanish/English,” 23% of students responded that they disliked their other classes in the subject area. These students cited many reasons for disliking the classes; some claimed that their previous coursework was too difficult while others disliked their teachers or the teachers’ styles of teaching. Many other students claimed that the classes were not helpful or meaningful or that they were boring.

In contrast, 77% of students said they liked their courses. These students claimed to like their English or Spanish classes because they liked the teacher and thought the class was fun. Some students also mentioned the ease and overall meaningfulness or helpfulness of the class.

Weekly Feedback

Each week, we asked students to share their preferences about the types of activities we did in class. Students stated that they most preferred competition and games as well as group and partner work. They least preferred debates and puzzling or mysterious activities.

We then used the student feedback to select and plan lessons and activities for the following week.

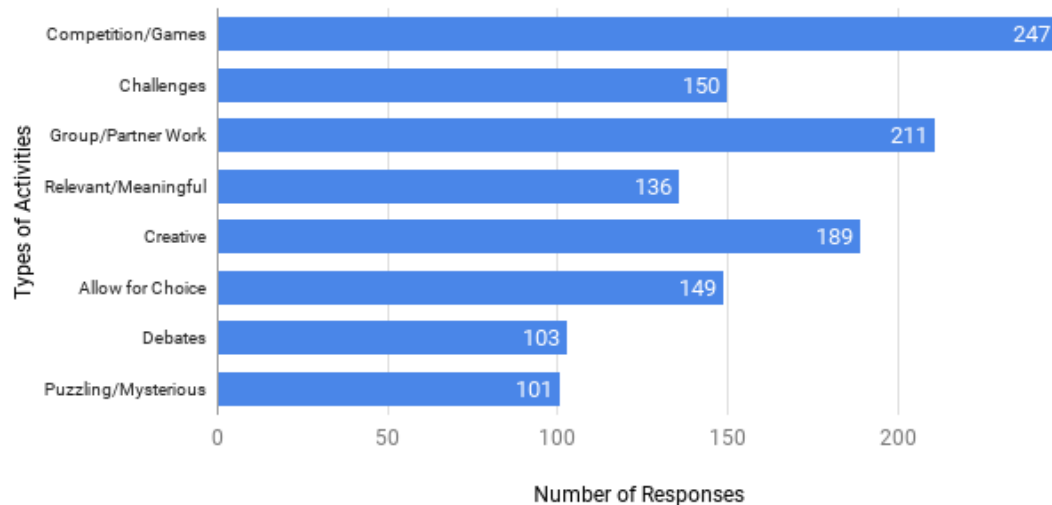


Figure 1. Student activity type preferences.

At the end of each week, we asked students the same questions as in the initial feedback survey. We averaged their responses to all of the surveys to determine their overall levels of engagement. A majority (60%) of students reported feeling as though they were very focused in class. An additional 39% of students responded that they were mostly paying attention, but sometimes got distracted from their class work. Sixty percent of students stated that they were very persistent in learning even when they got stuck. Less than 1% of students reported that they were not at all focused or persistent. The students' responses suggest that nearly all of the students felt that they were at least strategically compliant in class.

One of the indicators of high levels of engagement (beyond strategic compliance) is that students find intrinsic value in their learning (Schlechty, 2011). Sixty percent of students stated that they were very committed to their work, but fewer students reported that their learning was

very meaningful or valuable. While students exhibited all of the outward behaviors that indicate engagement, the survey results suggest that their internal engagement was not as high.

Focus Group of Students

After gathering background on our students, we each selected three students who seemed most at risk for underperformance or disengagement based on their previous grades. During each day of the study, both teachers completed student observation forms for their individual focus group of students. At the end of the study, we calculated the average level of engagement for each focus group student over the course of the research project.

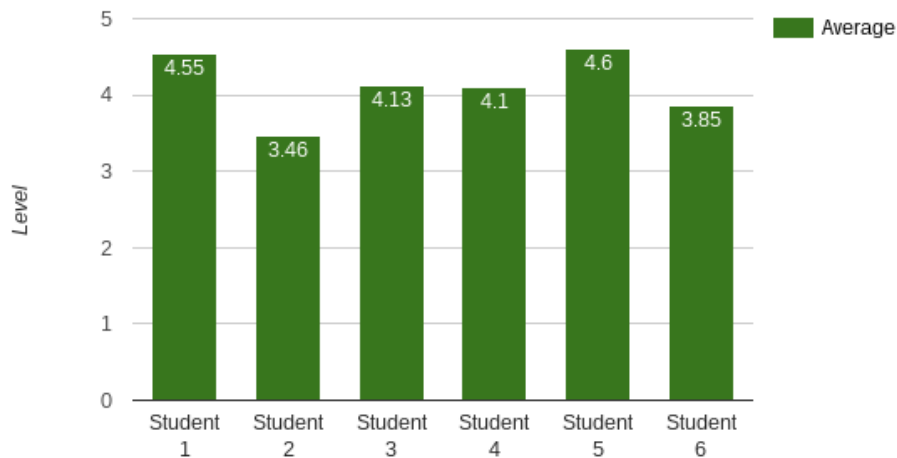


Figure 2. Average student engagement levels as observed by classroom teachers. Level 1 = rebellion, level 2 = retreatism, level 3 = ritual compliance, level 4 = strategic compliance, and level 5 = engagement.

Overall, the students in the focus group were mostly engaged in class. There were only four instances out of 111 observations (3.6%) where the focus group of students exhibited the lowest levels of engagement - retreatism or rebellion - during class. All students in the focus group averaged above level 3 (ritual compliance). Four of the six focus group students

averaged above level 4 (strategic compliance). Every student in the focus group was observed most frequently at level 4 or level 5 engagement during the study, which suggests that student averages were brought down by very rare instances (1 day or 2 days) of low engagement.

The high levels of engagement that we observed seem to dramatically impact student performance for the students in the focus group. Every student who was part of our focus group improved his/her achievement from the previous year. Several students improved dramatically: Student 2 improved from a D to an A-, Student 5 improved from a D to a B-, and Student 6 improved from an F to a B-. While their previous grades identified them as at-risk for failure at the beginning of the study, none of the six students who were part of our focus group were at risk of failing at the conclusion of our study. In fact, five of the six students in the focus group were performing at levels higher than their class average.

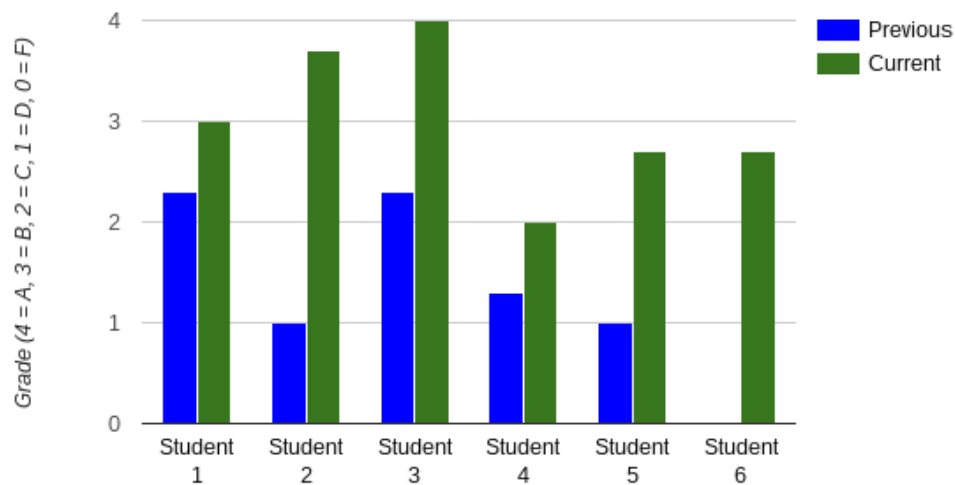


Figure 3. Comparison of current and previous grades.

Final Survey

At the conclusion of our study, we asked all of our students to provide feedback using the same questions we asked at the beginning of the research. For the initial response, students

referred to their previous courses. This time, we asked them to think only about their current class. Students responses increased in all categories from their first responses. The percentage of students who responded that they pay attention all or most of the time increased from 84.9% to 91.2%. At the beginning of the study, 74.4% of the students said they want to learn all or most of the time. By the end of the study, that percentage was increased by twelve percent to 86.7%. In response to their persistence, 80.3% of students claimed that they always or mostly tried hard and did not give up, increased to 84.4% by the end of the study. Lastly, students' opinions about the usefulness or meaningfulness of class grew from 74.4% to 84.4% over the course of the study.

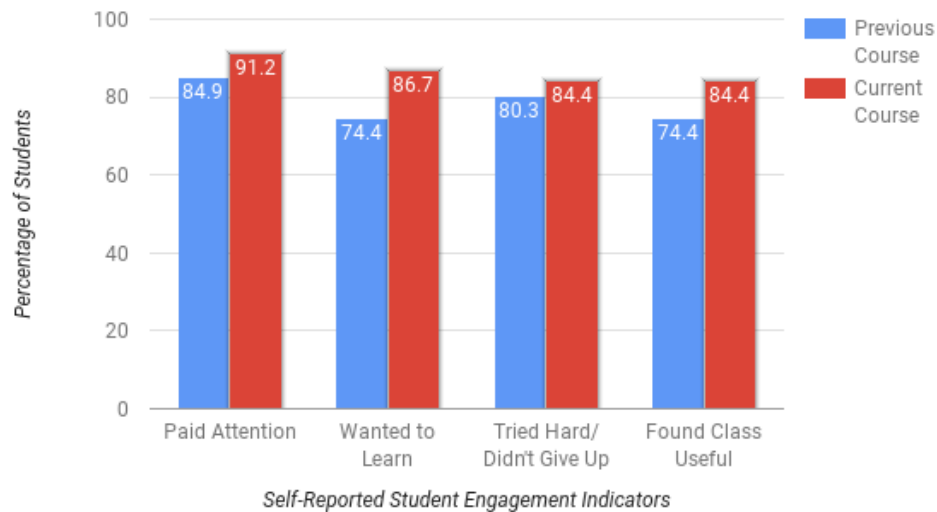


Figure 4. Comparison of students who responded “all of the time” or “most of the time”.

In addition to questions about areas of engagement, we once again asked students whether they liked or disliked their current courses. Compared to the initial responses, 11% fewer students disliked the course.

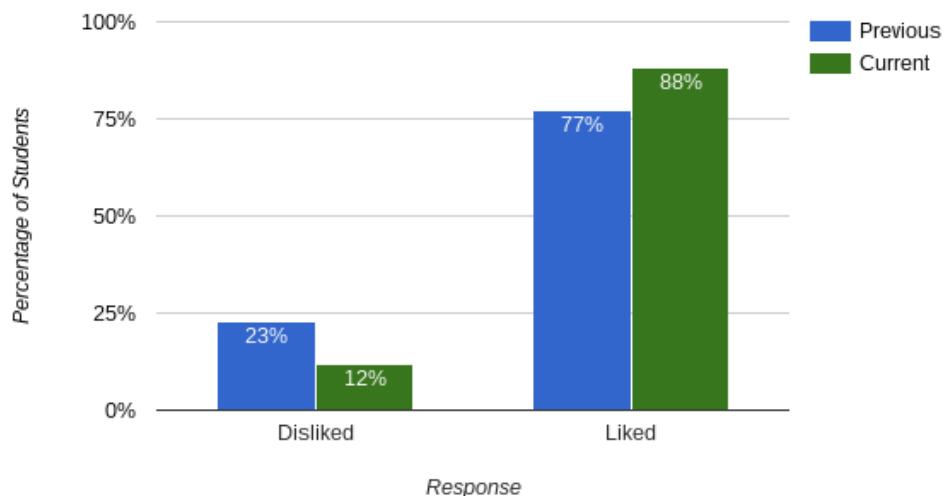


Figure 5. Comparison of students' opinions about Spanish/English courses.

When asked to explain what they liked and disliked about their current course, students gave a variety of answers. The most cited reason for enjoying the course was that the class was fun. Second most common was that students liked the teacher. Other common responses included the teaching style of the teacher, the types of activities in class, and the helpfulness of the course content. Students who still disliked the class at the end of the study also provided reasons for their opinion. These responses did not fall into any distinct themes; students shared reasons ranging from a dislike of other students in the class, to the time of day that the class was offered, to a dislike of every part of their school day.

The final questionnaire included one additional question that we did not include on the initial feedback from students. We asked students to tell us if they felt that they were more engaged in their current English/Spanish class than they were last year. A high majority (88%) of students said that they were more engaged while 12% of students stated that they were not more engaged. Based on the responses to other questions, the students who responded “no”

may not have been disengaged, but they did not feel as though their levels of engagement had increased compared previous class experiences.

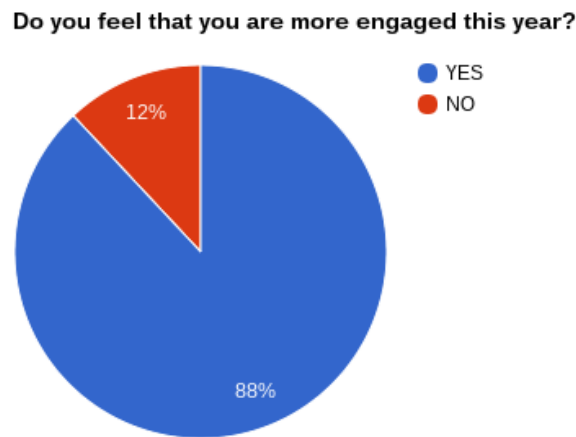


Figure 6. Student perception of classroom engagement.

Final Grades

Before we began our classroom research, we gathered background on our students. We created a spreadsheet of student demographics as well as their previous grades in English and Spanish courses at our schools. At the end of our research project, we compared the students' current grades to their previous grades.

At the end of the study, 55% of students were earning a grade higher than they had previously achieved in their English or Spanish courses, while 39% of students had the same grade as in their previous coursework. It is important to note that of the students who earned the same grade, 86% received an A as their previous grade and were unable to achieve a better grade as a result of the research study. Only 6% of students were earning a grade that was lower than in their previous courses. Our previous data showed that two students had failed

their previous coursework, but no students were failing their Spanish or English class at the end of this study.

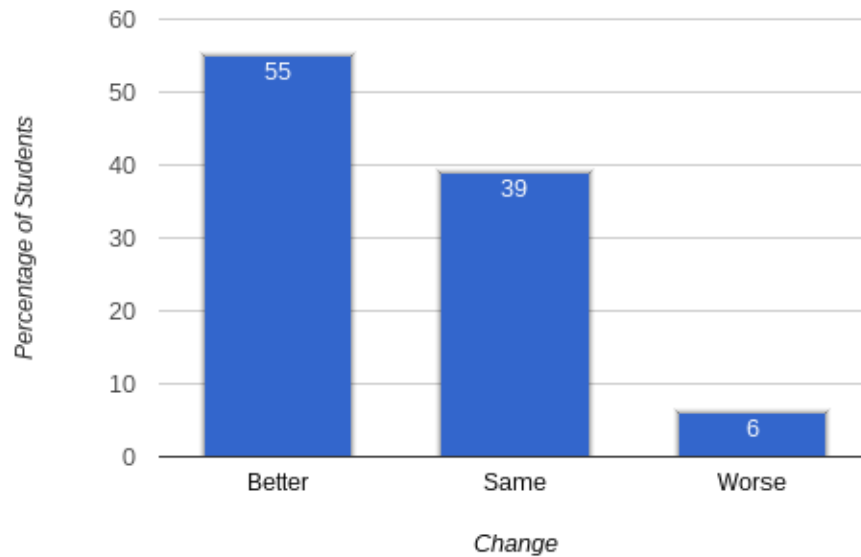


Figure 7. Comparison of current grades to previous grades.

We were unable to acquire previous grades for 19 of our students (20%) either because they were new to the school or had not yet taken a Spanish class. For these students, we analyzed current grades to determine mean and mode. The average grade for students with no previous data was between a B and a B+. The most common grades for that group of students was an A, A-, or B. While we cannot compare these grades to their previous performance, this group of students performed well despite being new to the content area or to the school district.

Teacher Reflections

The last source of data we collected was in the form of daily teacher reflections. Each day, both teachers reflected on the levels of engagement in the day's lessons. Over the course of the study, we most frequently saw 75-99% of students engaged on a daily basis. In fact, we

rated 61% of the lessons in our reflections as engaging for a more than 75% of students. We observed that about 26% of the lessons were engaging for every single student. Only 11% of our lessons during the study yielded lower levels (50-75% of students) of engagement.

Although the daily reflection included options for 0-25% engagement and 25-50% engagement, neither teacher observed levels of engagement in those lowest levels.

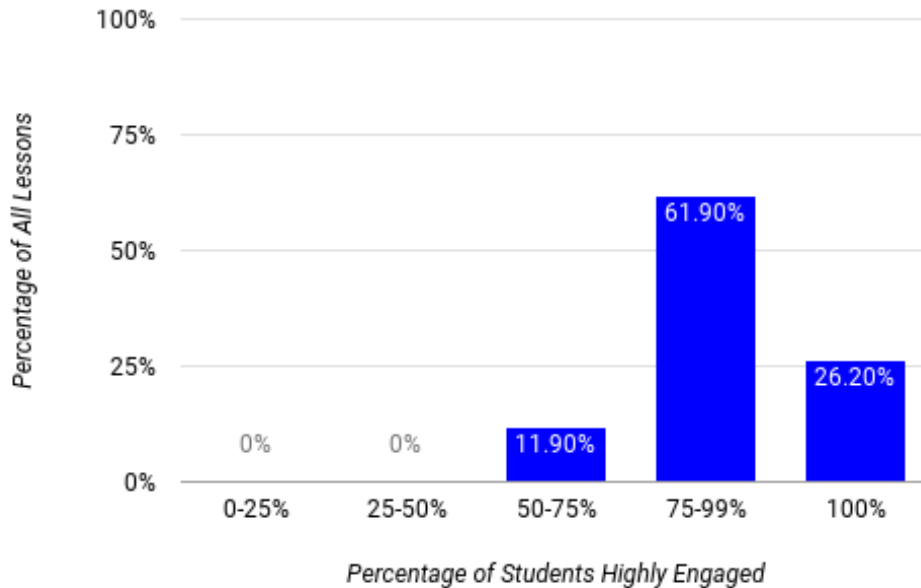


Figure 8. Teacher observation of levels of engagement.

We analyzed each level more closely to determine the types of activities that created higher or lower levels of engagement. All four major types of activities were used in lessons that the teacher reported the highest levels of students were engaged.

This data did not give us much insight into the relative effectiveness of each strategy. However, in lessons where only 50-75% of students were engaged, the types of strategies used were competition/challenge and cooperation/connections.

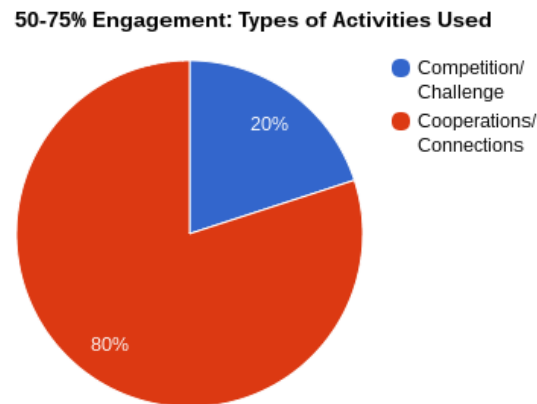


Figure 9. Types of activities used at the lower levels of engagement.

Each of our reflections included notes and details about the engagement strategies used in class that day. In cases where engagement was lowest, students were doing challenging activities rather than participating in competition. In the 80% of cooperation/connections activities that yielded lower levels of engagement, students were being asked to reflect and share personal connections to topics they were studying in class. Early in the year, student may not have had the confidence or level of comfort to participate in these types of activities. That may be why we saw more cases of disengagement on class days that asked students to take part in challenging or personal activities.

Each of our reflections also included notes about the types of things that might have made each of the lessons more engaging for students. A few common themes emerged about lessons where students seemed disengaged. Students were observed avoiding work, participating in off-task behavior, complaining or exhibiting frustration, asking questions about the instructions, completing only minimum task requirements, and avoiding attention from peers.

In response to student disengagement, our reflections included suggestions for increasing the levels of engagement for future lessons. These suggestions most frequently included adjusting the level of challenge, changing the structure and pacing of the lesson, and providing examples or exemplars to clarify instructions and expectations.

Action Plan

The results of our research study support the idea that when students experience higher levels of engagement, they experience greater levels of success. Engagement also appears to lead to deeper levels of learning; however, it is difficult to be certain based on our short-term study. While some engagement strategies tend to take some time away from classroom content, our research suggested that the extra time it took to ‘hook’ kids on learning did not negatively impact their achievement.

Though students reported their preferences for particular types of strategies, they were highly engaged in other kinds of activities even though they listed them as less desirable. It was clear that the students in this study preferred a variety of engagement strategies. Their wide range of preferences means that it is critical for both teachers and students to step out of their comfort zones to experience a variety of activities and strategies for learning.

The study also revealed the importance of paying close attention to students who are at risk for being disengaged. When activities and strategies are tailored to meet the needs of the students who are most at risk for disengagement, all students benefit. We found that students who might have typically rebelled against or retreated from learning became highly-engaged students in our classrooms, which eliminated many classroom distractions and disruptions.

Because it is difficult to observe the difference between compliance and engagement, it is important for teachers to elicit feedback from students and to spend time reflecting on the lessons that they create. Student surveys not only provide teachers with deeper insights about the real level of engagement students experienced, but they also act as an engagement strategy themselves by giving students choice and voice. By spending time formally reflecting on lessons each day, we were able to fine-tune our use of the strategies in response to our students' needs. Reflection is crucial because there is no technical solution to student disengagement in the classroom. Teachers must continually adapt and adjust instruction based on their observations.

Our research also has possible impacts on student learning. Often teachers become frustrated when they see students not performing well. With the implementation of the eight types of engagement strategies, teachers can reach all students through their improved instruction (Silver & Perini, 2010). Teachers' levels of efficacy can improve which can also lead to more job satisfaction. It is also important to mention that to reach all students, teachers must include a variety of instructional strategies to encourage high levels of student engagement. By providing variety in the different types of engagement strategies, teachers allow students the opportunity to invest in their learning and connect with the material.

Engagement is a broad research topic that can also encompass a wide variety of variables. There are many potential topics for future investigations on engagement. Possible research questions may include:

1. To what extent do each of the individual engagement strategies have on student achievement? Is there a different impact on student learning based on which particular engagement strategy teachers use in the classroom?

2. How might our data be affected by including the entire population of students in the grade level? (The students in the English courses were those tracked in the lowest ability level and many students receiving special education services were not enrolled in the Spanish classes.)
3. In what ways, if any, does the time of day the students are in class impact their engagement levels?
4. Does the difficulty of the curriculum impact student engagement? (The first unit in the Spanish class is a review of the previous course.)
5. Are specific engagement strategies more effective in different subject or content areas?
6. Are specific engagement strategies more effective with different subgroups of students (race, gender, age, special education, English-Language Learners)?

Because student engagement is a broad topic to study, many factors may impact it.

Future research and studies may provide additional insight on teaching practices and student learning.

At the onset of our research study, we wanted to know what effect the use of engagement strategies would have on student academic performance in eighth-grade Spanish and ninth-grade English courses. The data we collected supported the existing research that students who are more highly engaged are also more academically and behaviorally successful in class. While many variables might impact student performance in school, our research suggests that creating engaging lessons is a valuable use of teacher time and energy because of the impact those engaging lessons can have on student academics and behavior.

References

- Brewster, C. & J. Fager. (2000). Increasing student engagement and motivation: From time on task to homework. *Northwest Regional Educational Laboratory*. Retrieved from <http://educationnorthwest.org/sites/default/files/byrequest.pdf>
- Conner, J. O., & Pope, D. C. (2013). Not just robo-students: Why full engagement matters and how schools can promote it. *Journal of Youth and Adolescence*, 42(9), 1426-42. Retrieved from <http://search.proquest.com.pearl.stkate.edu/education/docview/1428712242/839B46977F1C48E7PQ/1?accountid=26879>
- Delisle, J. R., PhD. (2012). Reaching those we teach: The five cs of student engagement. *Gifted Child Today*, 35(1), 62-67. Retrieved from <http://pearl.stkate.edu/login?url=http://search.proquest.com/docview/1419022042?accountid=26879>
- Dooner, A., Mandzuk, D., Obendoerfer, P., Babiuk, G., Cerqueira-Vassallo, G., Force, V., . . . Roy, D. (2010). Examining student engagement and authority: Developing learning relationships in the middle grades. *Middle School Journal*, 41(4), 28-35. Retrieved from <http://pearl.stkate.edu/login?url=http://search.proquest.com/docview/217434568?accountid=26879>
- Dudley, C. J. (2010). An exploration of instructional strategies for increasing levels of student engagement in core subjects (Order No. 3435581). Available from Education Database. (816366170). Retrieved from

<http://pearl.stkate.edu/login?url=http://search.proquest.com/docview/816366170?accountid=26879>

Fink, L.D. (2007). The power of course design to increase student engagement and learning. *Association of American Colleges and Universities*, 13-19. Retrieved from <http://sites.jmu.edu/flippEDout/files/2013/04/Fink2007.pdf>

Jablon, J. R., & Wilkinson, M. (2006). Using engagement strategies to facilitate children's learning and success. *YC Young Children*, 61(2), 12-16. Retrieved from <http://pearl.stkate.edu/login?url=http://search.proquest.com/docview/197636917?accountid=26879>

Kaufman, E.K., Robinson, J.S., Bellah, K.A., Akers, C., Haase-Wittler, P., & Martindale, L. (2008). Engaging students with brain-based learning. *Techniques*, 50-56.

La Roche, C. R., & Flanigan, M. A. (2013). Student use of technology in class: Engaged or unplugged? *Journal of College Teaching & Learning (Online)*, 10(1), 47. Retrieved from <http://pearl.stkate.edu/login?url=http://search.proquest.com/docview/1418715850?accountid=26879>

Maday, T. (2008). Stuck in the middle: Strategies to engage middle-level learners. *All About Adolescent Literacy*. Retrieved from <http://files.eric.ed.gov/fulltext/ED501737.pdf>

Schlechty, P. (2011). *Engaging students: The next level of working on the work*. San Francisco, CA: Jossey-Bass.

Shernoff, D. J. (2010). *The experience of student engagement in high school classrooms: Influences and effects on long-term outcomes*. Saarbrücken: Lambert Academic Publishing.

Silver, H. & Perini, M. (2010). *The eight Cs of engagement: How learning styles and instructional design increase student commitment to learning*. Solution Tree. Retrieved from http://lackawannaschools.org/cms/lib/NY19000337/Centricity/ModuleInstance/865/Th eEight_Cs_of_Engagement.pdf

Wiggins, G. & McTighe, J. (2007). *Schooling by design*. Alexandria, VA: Association for Supervision & Curriculum Development.

Yazzie-Mintz, E. (2010). *Charting the path from engagement to achievement*. Bloomington, IN: Center for Evaluation and Education Policy. Retrieved from http://www.safeschools.info/docman/doc_download/326-charting-the-path-from-engagem ent-to-achievement

Yonezawa, S., Jones, M., & Joselowsky, F. (2009). Youth engagement in high school: Developing a multidimensional, critical approach to improving engagement for all students. *Journal of Educational Change*, 10, 191–209. Retrieved from <http://search.proquest.com.pearl.stkate.edu/education/docview/1727370203/A6A8284 F5A174584PQ/1?accountid=26879>

Appendix A

Typology of Engagement

Conner and Pope (2013) provide a typology chart for engagement to help teachers identify seven types of engagement in learners along with a checklist that shows what those students may need to become fully engaged. Each row of the chart includes a checklist of the types of engagement associated with each level of engagement as well as an example of a classroom situation.

Table 1. Typology of Engagement

Engagement type	Enjoy Affective	Put in effort Behavioral	See value Cognitive	Example
Purposefully engaged		✓	✓	A student studies hard for a calculus test because he knows that understanding the material and doing well on the test are important to achieving his future goals; he does not enjoy the studying however
Fully engaged	✓	✓	✓	A student enjoys creating a documentary film project with her peers because she cares deeply about the topic, and she sees the assignment as a worthwhile use of her time. She spends a lot of time and effort working on this project
Rationally engaged			✓	A student sees the importance of learning about global warming in Earth Science class, but he is not willing to exert effort required to concentrate and take notes because he finds the teachers' lecture to be excruciatingly boring
Busily engaged		✓		A student works hard to get her homework completed accurately, though she does not particularly care about the material or the questions. Nor does she see their relevance to her interests and aspirations. She finds the prefabricated worksheets she must complete to be boring and monotonous
Pleasantly engaged	✓			A student enjoys listening to his teacher relay stories about World War I; however, he does not value this topic or see it as relevant. He does not take notes; he does not concentrate on the details the teacher shares, and he allows his mind to wander occasionally
Mentally engaged	✓		✓	A student enjoys working on her project in art class and she cares about mastering the technique; however, it is the day before spring break and she is not putting a lot of thought or effort into her project. She is just trying to get it done quickly so the class can have a party
Recreationally engaged	✓	✓		A student works hard to help his group-mates score more points than any other group during a game in class; he is thinking hard and reviewing his notes carefully to find the correct answers, and he is having fun with his peers, enjoying the game and the friendly competition; however, when asked if he values either the material the class is reviewing or the skills he may be developing by playing the game, he says "No. They are not connected to my larger goals."

Note: From "Not just robo-students: Why full engagement matters and how schools can promote it," by J.O. Conner and D.C. Pope, 2013, *Journal of Youth and Adolescence*, 42(9) p. 1430. Copyright Springer Science+Business Media.

Appendix B

This daily checklist was designed to help us record the date, the lesson content for the day, the level of engagement we observed, and expanded notes to describe the behaviors we observed for each student. The front of the form (Image 1) was used to record data. The back side of the sheet (Image 2) included helpful information to guide our observations.

Image 1. Front of Student Observation Checklist

ACTION RESEARCH STUDENT OBSERVATION CHECKLIST			
	Student #1	Student #2	Student #3
<p>MONDAY</p> <p>Date: _____</p> <p>Lesson: _____</p>	<input type="checkbox"/> Engagement <input type="checkbox"/> Strategic Compliance <input type="checkbox"/> Ritual Compliance <input type="checkbox"/> Retreatism <input type="checkbox"/> Rebellion Notes: _____	<input type="checkbox"/> Engagement <input type="checkbox"/> Strategic Compliance <input type="checkbox"/> Ritual Compliance <input type="checkbox"/> Retreatism <input type="checkbox"/> Rebellion Notes: _____	<input type="checkbox"/> Engagement <input type="checkbox"/> Strategic Compliance <input type="checkbox"/> Ritual Compliance <input type="checkbox"/> Retreatism <input type="checkbox"/> Rebellion Notes: _____
<p>TUESDAY</p> <p>Date: _____</p> <p>Lesson: _____</p>	<input type="checkbox"/> Engagement <input type="checkbox"/> Strategic Compliance <input type="checkbox"/> Ritual Compliance <input type="checkbox"/> Retreatism <input type="checkbox"/> Rebellion Notes: _____	<input type="checkbox"/> Engagement <input type="checkbox"/> Strategic Compliance <input type="checkbox"/> Ritual Compliance <input type="checkbox"/> Retreatism <input type="checkbox"/> Rebellion Notes: _____	<input type="checkbox"/> Engagement <input type="checkbox"/> Strategic Compliance <input type="checkbox"/> Ritual Compliance <input type="checkbox"/> Retreatism <input type="checkbox"/> Rebellion Notes: _____
<p>WEDNESDAY</p> <p>Date: _____</p> <p>Lesson: _____</p>	<input type="checkbox"/> Engagement <input type="checkbox"/> Strategic Compliance <input type="checkbox"/> Ritual Compliance <input type="checkbox"/> Retreatism <input type="checkbox"/> Rebellion Notes: _____	<input type="checkbox"/> Engagement <input type="checkbox"/> Strategic Compliance <input type="checkbox"/> Ritual Compliance <input type="checkbox"/> Retreatism <input type="checkbox"/> Rebellion Notes: _____	<input type="checkbox"/> Engagement <input type="checkbox"/> Strategic Compliance <input type="checkbox"/> Ritual Compliance <input type="checkbox"/> Retreatism <input type="checkbox"/> Rebellion Notes: _____
<p>THURSDAY</p> <p>Date: _____</p> <p>Lesson: _____</p>	<input type="checkbox"/> Engagement <input type="checkbox"/> Strategic Compliance <input type="checkbox"/> Ritual Compliance <input type="checkbox"/> Retreatism <input type="checkbox"/> Rebellion Notes: _____	<input type="checkbox"/> Engagement <input type="checkbox"/> Strategic Compliance <input type="checkbox"/> Ritual Compliance <input type="checkbox"/> Retreatism <input type="checkbox"/> Rebellion Notes: _____	<input type="checkbox"/> Engagement <input type="checkbox"/> Strategic Compliance <input type="checkbox"/> Ritual Compliance <input type="checkbox"/> Retreatism <input type="checkbox"/> Rebellion Notes: _____
<p>FRIDAY</p> <p>Date: _____</p> <p>Lesson: _____</p>	<input type="checkbox"/> Engagement <input type="checkbox"/> Strategic Compliance <input type="checkbox"/> Ritual Compliance <input type="checkbox"/> Retreatism <input type="checkbox"/> Rebellion Notes: _____	<input type="checkbox"/> Engagement <input type="checkbox"/> Strategic Compliance <input type="checkbox"/> Ritual Compliance <input type="checkbox"/> Retreatism <input type="checkbox"/> Rebellion Notes: _____	<input type="checkbox"/> Engagement <input type="checkbox"/> Strategic Compliance <input type="checkbox"/> Ritual Compliance <input type="checkbox"/> Retreatism <input type="checkbox"/> Rebellion Notes: _____

Image 2. Back of Student Observation Checklist

INDICATORS OF ENGAGEMENT LEVELS	
Engagement	<ul style="list-style-type: none"> The student is attentive to the task because he or she <i>finds personal meaning</i> and value in the task; the student sees the task as responding to motives and values he or she brings to the work. The student <i>persists</i> with the task <i>even when he or she experiences difficulty</i> and <i>does not compromise personal standards</i> for completion of the task even though he or she might be able to negotiate a lower standard if he or she wanted to. The student <i>volunteers resources</i> under his or her control - time, effort, and attention - which is to say that the student is <i>committed to the work</i> and places moral value on its completion.
Strategic Compliance	<ul style="list-style-type: none"> The student is <i>attentive to the task</i> because he or she perceives that the receipt of some <i>desired extrinsic reward</i> is conditionally available to those who pay attention to the task and do what is required of them. The student <i>persists</i> with the task only up to the point of ensuring that the desired reward is offered, and the student is willing to accept the reward and <i>abandon the task even though he or she may not be personally satisfied</i> that the work done is of the quality that he or she could produce. The student allocates only as much time, energy, and resources <i>as are required to get the reward</i> offered or desired.
Ritual Compliance	<ul style="list-style-type: none"> The student <i>pays minimal attention</i> to the work, is easily distracted, and is <i>constantly seeking alternative activity</i> to pursue. For example, it appears that texting has now become a favorite pastime for those who are ritually compliant. The student is <i>easily discouraged</i> from completing the task and regularly tries to <i>avoid the task</i> or <i>get the requirements of the work waived or compromised</i>. The student does only those things that must be done and <i>does little or nothing outside the context of direct supervision</i> by the teacher or other adults.
Retreatism	<ul style="list-style-type: none"> The student <i>does not attend to the work</i>, but does not engage in activity that distracts others. Indeed, the student <i>often employs strategies to conceal</i> his or her lack of involvement - for example, sleeping with eyes wide open and smiling from time to time. Because the student does not do the work, persistence is totally lacking. The student <i>does nothing</i> and, <i>when forced through direct supervision to do the task, either engages in ritual behavior or rebellion</i>.
Rebellion	<ul style="list-style-type: none"> The student <i>overtly refuses to comply</i> with the requirements of the task. This refusal may involve <i>cheating, refusing to do the work, or even doing other work</i> in place of that which is expected. Because the student does not do the work, persistence is totally lacking. <i>Alienation</i> rather than commitment is evident. Unlike the retreaters, students who rebel are likely to be active in their rejection of the task, up to and including <i>efforts to sabotage the work, cheat, and build negative coalitions</i> of other students around the work and the rejection of the values the work suggests.

Schlechty, P.C. (2011). *Engaging students; The next level of working on the work*. San Francisco, CA: Jossey-Bass. 34-36.

Appendix C

This weekly student feedback form was used to collect preferences and self-reflections of our students. Questions 1-4 helped identify which aspects of engagement students

Image 1. Paper Version of Student Preferences Form

STUDENT PREFERENCES AND FEEDBACK - WEEKS 2-5	
1. How focused were you on learning in class this week?	VERY ("I paid attention during class, was focused on my work, and used class time to get work done.") SOMEWHAT ("I mostly paid attention and did my work, but sometimes I got distracted by other things.") NOT ("I didn't pay much attention or do much work because I zoned out or chose to do other stuff.")
2. How committed were you to learning in class this week?	VERY ("I wanted to learn and participate, even if it didn't matter for my grade.") SOMEWHAT ("I learned and participated because I didn't want to get in trouble or get a bad grade.") NOT ("I didn't learn or participate much because I don't care if I get in trouble or get a bad grade.")
3. How persistent were you in learning in class this week?	VERY ("Even when something was difficult or I got stuck, I tried to do it anyway.") SOMEWHAT ("When something was difficult, I tried to quit but kept going after some help.") NOT ("When something was difficult, I quit and didn't want help to get started again.")
4. How meaningful or valuable was your learning in class this week?	VERY ("The things we learn in class are worthwhile and useful to me.") SOMEWHAT ("I can see how the things we learn in class could be worthwhile or useful.") NOT ("I don't think the things we learn in class will be very worthwhile or useful.")
5. If you were teaching the class next week, which types of activities would you include?	<input type="checkbox"/> friendly competition and games <input type="checkbox"/> challenging activities (but not too challenging) <input type="checkbox"/> group work, partner work, or discussions <input type="checkbox"/> activities about things that matter to students <input type="checkbox"/> creative activities and projects <input type="checkbox"/> activities that let students can choose what they want to do <input type="checkbox"/> debates on interesting questions or hot topics <input type="checkbox"/> activities that are puzzling, mysterious, or have interesting questions