

8-2015

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## Recommended Citation

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# Universal Response Methods

An Action Research Report

By Kristin Nordstrom & Robert Mathis

Universal Response Methods

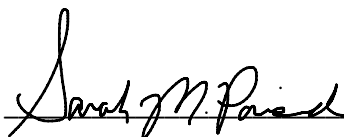
Submitted on Date (August 1, 2015)

in fulfillment of final requirements for the MAED degree

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### Abstract

The purpose of this research was to identify which student response system when used during formative assessment would increase student engagement and learning. Students responded utilizing the Socrative application on iPads and individual white boards with markers on student response cards. The participants in this study were a group of five male students ages 11-14 enrolled in a self-contained (setting IV), emotional and behavioral program. We used various data collection methods to gather evidence that included on-task behavior, questions answered correctly, questions attempted, time spent in class, and student reflections. Our data showed that students were more inclined to be successful using the Socrative program than the response cards during formative assessment. Our findings indicate that students preferred Socrative over the response card method. Data also supported that students were more engaged and were more likely to answer questions correctly when using Socrative.

*Keywords:* formative assessment, student response systems, student response cards, Socrative

Paper crunches in a display defiance, a pair of students attempt to spark a mutiny in the back row, a student mutters something inaudibly inappropriate on his way out the door, then silence falls over the room as all eyes eagerly anticipate the teacher's next move. During formative assessments there is a common theme in our classrooms. The students will not engage in the assessments and instead refuse, argue, complain, engage in off-task behaviors, or give inaccurate responses. Through observations and data collection, we find that students are not engaging with nor responding effectively to traditional methods of formative assessment. The purpose of this action research project is to utilize non-traditional methods of formative assessment to increase student engagement and learning.

Our research takes place in a setting IV special education Life Skills classroom consisting of five male students. The instructor of the class has been teaching this class for three years. The age range in the classroom is 11-14 years old and all students qualify for free and reduced lunch. All students are on individual education plans (IEP) and qualify for services under emotional and behavioral disorders (EBD).

### **Review of Literature**

Students with emotional and behavioral disorders are classified as having extreme behavior, displaying a violation of social and cultural expectations, and chronic issues (Kauffman, 2009). These deficit categories can make it incredibly difficult for students with the emotional and behavioral label to provide useful feedback regarding their understanding of class concepts. Students under the emotional and behavioral category display a wide variety of diagnoses and symptoms, which means that it is critical to implement creative methods of formative assessment to gather feedback and construct lessons to fit their unique needs.

The goal of formative assessment is to increase the level of classroom interaction, student

motivation, and effectiveness of teaching (Salend, 2009). This increase can be accomplished through various methods of formative feedback, the most traditional technique being the show-of-hands method, which limits teachers to one student response at a time. Through the use of student response systems and response cards, teachers can track classroom-wide responses in real time, analyze, and use the data to adapt their instruction (Salend, 2009). The use of these two strategies can work positively to impact the confidence of the student in regards to classroom participation.

Several factors can contribute to why students with emotional behavioral disorders may not participate in academic assessments. Students with emotional behavioral disorders may have dual deficits. Dual deficits mean that they lack social/behavioral skills and academic skills (Kauffman, 2005; Nelson, 2004; Sutherland, K. S., Lewis-Palmer, T., Stichter, J., & Morgan, P. L. 2008). Kauffman (2005) came to the conclusion that most students with emotional and behavioral disorders are deficient in academic skills; many are at least one year below grade level. Sutherland (2003) found that students with EBD need more opportunities to respond actively to remain engaged and increase correct answers given. Students may not participate in assessments because the opportunities to respond are too infrequent. Researchers found that students diagnosed with EBD may be anxious, struggle with time constraints, or they may be easily embarrassed regarding their work (George, 2010; Kaufman 2005; McMillan 2014). McMillan (2014) believes that personal or school issues can cause fear or physical symptoms that could affect students with special needs and their ability to function in the classroom. Currently, few students receive the mental health services they could qualify for (Wagner, M., Friend, M., Bursuck, W. D., Kutash, K., & et.al., 2006). Students who have significant mental health concerns can lack motivation.

When conducting formative assessments, it is important to provide enough wait time for student responses (McMillan, 2014). If students do not have enough wait time, they may give up or not have the opportunity to provide an answer. Including all students is a significant component when questioning, avoiding questions that focus on a select few students answering them is another key component (McMillan, 2014). During classroom instruction, teachers generally ask students to raise their hands to answer questions and call on only one to answer which affects how many students have the opportunity to provide a reply (Haydon, T., Hawkins, R., Denune, H., Kimener, L., McCoy, D., & Basham, J., 2012). Increasing the opportunities to respond to questions can increase achievement and engagement for students with emotional and behavioral disorders (Sutherland et al., 2003).

Student response systems (SRS) and response cards can be effective methods of formative assessment in the classroom. Both methods require the teacher to present a lesson to a small or large group of students and then initiate a student response. Each technique has beneficial elements that contribute to student success in gathering formative feedback during a lesson.

In an electronic student response system students can answer questions set by the teacher using a handheld device that is linked to a computer to organize the responses (Cutts & Kennedy, 2005). As identified by Cutts and Kennedy (2005), one of the critical parts of this process is that it does not require complete re-examination and re-tooling of the curriculum to implement the technology. The teacher would be able to utilize the same assessment questions designed for show of hands response, but instead input those questions into the student response system.

Studies show that students have been in favor of using student response systems or “clickers” to provide in-class feedback. Robinson and Ritzko (2010) found that 40% of the

students in their study attended class regularly, another 40% stated that they would be inclined to participate if they knew that the student response system would be used in class that day. In the same study, class participation was also shown to increase using the clickers and 40% of students reported being more likely to complete an in-class opinion poll (Robinson & Ritzko, 2010). A study by Cutts and Kennedy in 2005 also provided evidence of a student perspective and the positive correlations of student response systems. In the Cutts and Kennedy (2005) study, students reported strong endorsement of the student response systems in class due to their ability to have an impact on the lesson and display active participation in class. Pupils in the study also reported that they appreciated the anonymity of the responses in the student response system method. Students stated they would be twice as likely to respond when using the student response system as the traditional show of hands (Cutts & Kennedy, 2005).

Response cards are signs or boards used by students. These cards are designed to be held up in class by students to show their answers to questions (George, 2010). George (2010) describes response cards as student feedback in the form of words or pictures capitalizing on the power of peer involvement. George describes the effect of seeing peers participate using response cards as motivating and anxiety reducing (2010). In comparison to show of hands, response cards also provide the teacher with the opportunity to gather feedback from multiple students simultaneously (Randolph, 2007). Randolph states that compiling this data on the fly during the class can provide the teacher with the ability to adapt and revise the lesson while continuing to conduct the lesson (2007). A benefit to utilizing the response card method is the limited amount of words that can be written on the card. Limiting the amount of words on the card forces the student to communicate clearly and concisely (Randolph, 2007) In 2005, Randolph, conducted a meta-analysis and incorporated it into his 2007 study. In Randolph's



study, he found that response cards affected students receiving 80% on tests from 41.8% to 52.1% (2007). Randolph also found that student participation in his study was 35.6% higher in the use of the response card condition (2007). In a preference rating, Randolph found that 82.2% of students chose response cards over show of hands. Students with disabilities also showed higher engagement with the use of response cards than those without disabilities (Randolph 2007).

After analyzing all the information above, we formulated a research question, will using universal student response tools in a self contained classroom where students are diagnosed with emotional and behavioral disorders impact their engagement in formative assessments?

### **Methodology**

The study took place over the course of four weeks during April and May of 2015. The subjects included five students enrolled in setting IV emotional and behavioral program. All students were on individual education plans and had individual positive behavior plans (BIP). The classroom consisted of all male students with a 1:5 staff to student ratio.

The method we used is Socrative, which is similar to the student response systems used in the previously cited research and student response cards. We alternated our methods (Socrative and student response cards) every other day. We used formative assessment questions that we typically administer verbally and students raise their hands to answer. We presented them on Socrative or we had students write their answers on student response cards. We used individual white boards and dry-erase markers for student response cards. We used the application Socrative on the iPads that allowed us to administer our formative assessment questions in real time and students responded on their individual tablet. The average number of questions we asked daily throughout the class period was 10.

The first day of our study we introduced the students to Socratic and the student response cards, we explained that we would be using them for the remainder of the year. We showed examples of Socratic and how it would work on the SmartBoard and iPad. We also demonstrated with the small white board how they would write answers to questions we present orally. It was also explained that we would alternate the strategies daily.

The first data source we used was an individual student reflection on Google Docs (Appendix A). Due to technical difficulties with the laptops we had students complete the reflection with paper and pencil. Students completed this reflection on day one of our study. The purpose of the reflection was to gain insight on students' attitudes towards current practices regarding formative assessment and responding in class.

The second data source we utilized was a whole interval recording form (Appendix B). The purpose of this form was to track students off task behavior. We identified the definition and topography on the tracking sheet to ensure consistency with data collection. The operational definition was the refusal to attend and complete tasks as requested by teachers and paraprofessionals. The topography was not responding to caregivers request to attend to the academic work; laying head down, staring, or engaging in another activity. We used the form on Tuesdays and Thursdays of every week. Data was collected in five-minute intervals. Each interval was five minutes in length. If a student exhibited an off task behavior within the five-minute interval, staff would mark a +. If a student did not exhibit off task behaviors during the five-minute interval, staff would put a 0. Staff would use the form for the duration of the class, which ranged from 20-30 minutes.

The third data source we used in our research was a formative assessment completion tracking form (Appendix C). The purpose of this form was to gather data regarding student's

ability to complete, partially complete, or not complete the formative assessment. This data was compiled along with the observed reason for the questions being partially completed or not attempted at all. The defined reasons students partially completed or did not attempt the formative assessment were that they left the class for a break, went to the bathroom, they were directed to leave the room due to behavior, pulled out for social work or speech/language services, walked out of the class without permission, or were out of the class due to illness. The one reason that we did not include on the tracking form that we found to be a common write-in was “refusal.” We used this form every day of the week. Staff would mark an “X” under the “Questions not attempted” column with the correlating reason if the student did not attempt to answer a single formative assessment question. Staff would then mark a “0” in the “Questions completed” column with the correlating reason. If a student partially answered the questions, staff would mark an “X” under the “Questions started but not completed” column with the correlating reason. Staff would then record the number of questions completed in the “Questions completed” column with the correlating reason. Staff would use the form for the duration of the class, which ranged from 20-30 minutes.

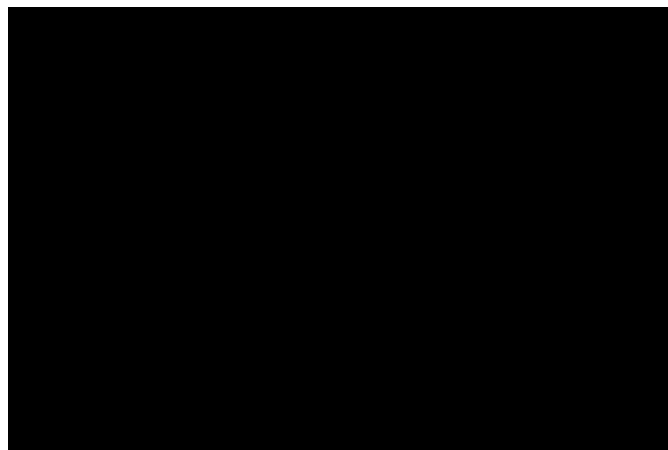
The fourth data source we used was a student response card tracking form. The purpose of this form was to track the amount of responses and the accuracy of responses given by students during the response card implementation days. This form was used every other day as student response cards and Socratic alternated in our research. The students were asked a question by the teacher and given time to respond on a portable whiteboard. Staff would record a “+” if a student wrote a correct answer, an “O” if a student wrote an incorrect answer and left the cell blank if the student did not answer. Staff would use this form only during the formative assessment – student response portion of the class period.

The last data source we used was an individual student reflection at the end of the four-week study (Appendix E). We administered the reflection with paper and pencil to remain consistent with the initial reflection. The purpose of this data source was to receive feedback regarding the formative assessment strategies we implemented in the research study.

### **Analysis of Data**

The students were asked to complete an initial and post reflection regarding their engagement in traditional formative assessment and Socratic or response cards. Data was collected on five students in the class.

The initial reflection found that three students do not typically raise their hand to answer questions while two students most often do raise their hand to respond to questions during discussions (Figure 1). Two students believe they don't raise their hands because they "don't know the answers." One student stated, "It depends on how I feel" and another student said, "I do not want to." The class answered yes or no to a question asking if they feel like they are currently engaged in class discussions. Three students stated, "no", one student said, "yes", and one student stated, "sometimes" (Figure 1).



*Figure 1.* Students who typically raise their hand in class and students who feel engaged.

The students rated the likelihood that they would raise a hand during class discussions. Zero being never raise a hand and three being always raise a hand. The most frequent rating was two (Figure 2).

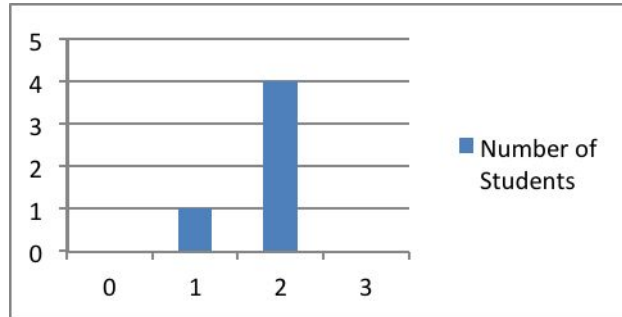


Figure 2. Student rating on likelihood to raise hand.

Students checked if they liked to answer questions when they raise hands, work with a classmate, use the iPad or computer, write on paper, or come up to the board. Students were able to check all that apply. All students preferred the iPad and computer and no students selected raising their hand (Figure 3).

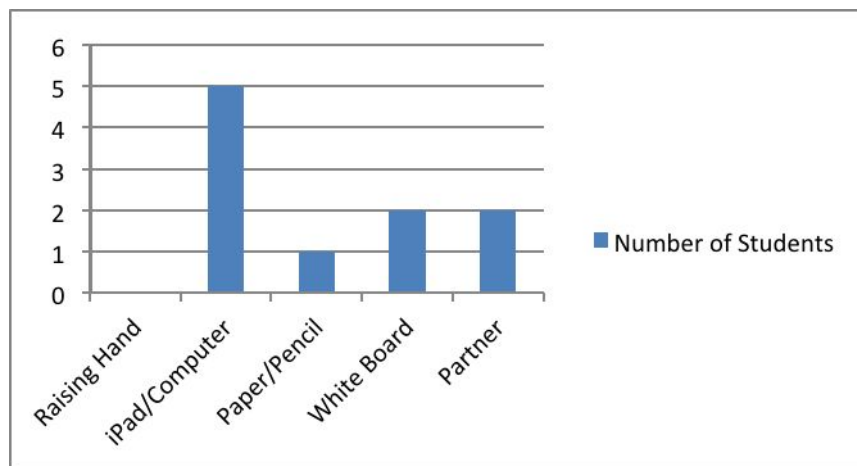


Figure 3. Students preference for class assessments.

Data was recorded regarding the amount of questions attempted by students during the response card and Socrative sessions. The sessions alternated days. Students used portable white

boards as response cards and iPads to respond using the Socrative app. The sessions were divided into ten equal data collecting period for each student response method. The data gathered from student response cards shows that there was never a day where all students completed all of the questions. The mean ranges from 67.5% to 96% over the recording period, reflecting that student participation was inconsistent on a day-to-day basis (Figure 4).

Student responses were collected digitally from the Socrative app and transferred to a spreadsheet. The mean range of the Socrative results is 75% to 100% (Figure 4). All students completed the entire set of response questions in 7 out of 10 Socrative periods, displaying consistent engagement in class and motivation to complete the assessment using the program (Figure 4).

In a cross comparison of the calculated mean percentage of questions answered for Socrative and student response cards, the Socrative application significantly outperformed student response cards. Students attempted more responses using the Socrative app than they did when using response cards (Figure 4).

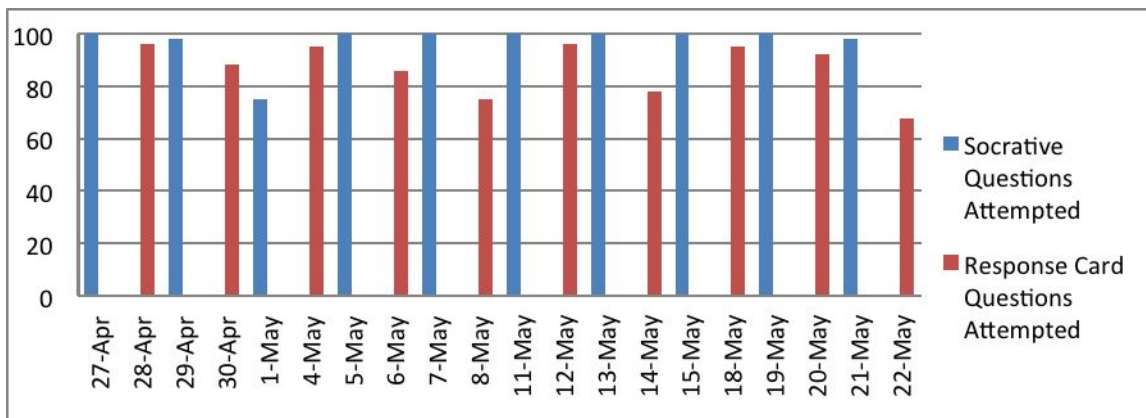


Figure 4. Comparison of the Mean % of Response Questions Attempted: Socrative vs. Response Cards.

Each response method required students to respond to a set amount of assessment questions. The answers to the questions were determined correct or incorrect by the teacher or by using the pre-set teacher answers in the Socratic program. The mean range of scores from the student response card data recording period was 35% to 70% (Figure 5). The standard grading scale is 70% = C, 80% = B, 90% = A. There was 1 week out of 10 that the student response card method resulted in accuracy that would have been above a passing grade according to the standard scale.

Data recorded during the Socratic sessions indicates that students answered the assessment questions at a higher level of accuracy over a more consistent period. The mean range during this recording period was 62.5% to 90% (Figure 5) The average of all five students was lower than 70 on one day, above 80 on seven days, and above 90 in two days (Figure 5). Using Socratic, the five students would be performing at a “B” level or better for 7 out of the 10 days on a standard scale.

A comparison of the mean accuracy recorded from the participants consistently shows Socratic as a more effective method of generating accurate responses to multiple choice formative assessment questions (Figure 5). Students were presented with the questions from the same course content, the same number of questions each day, and afforded the ability to answer by multiple choice in both Socratic and response card sessions.

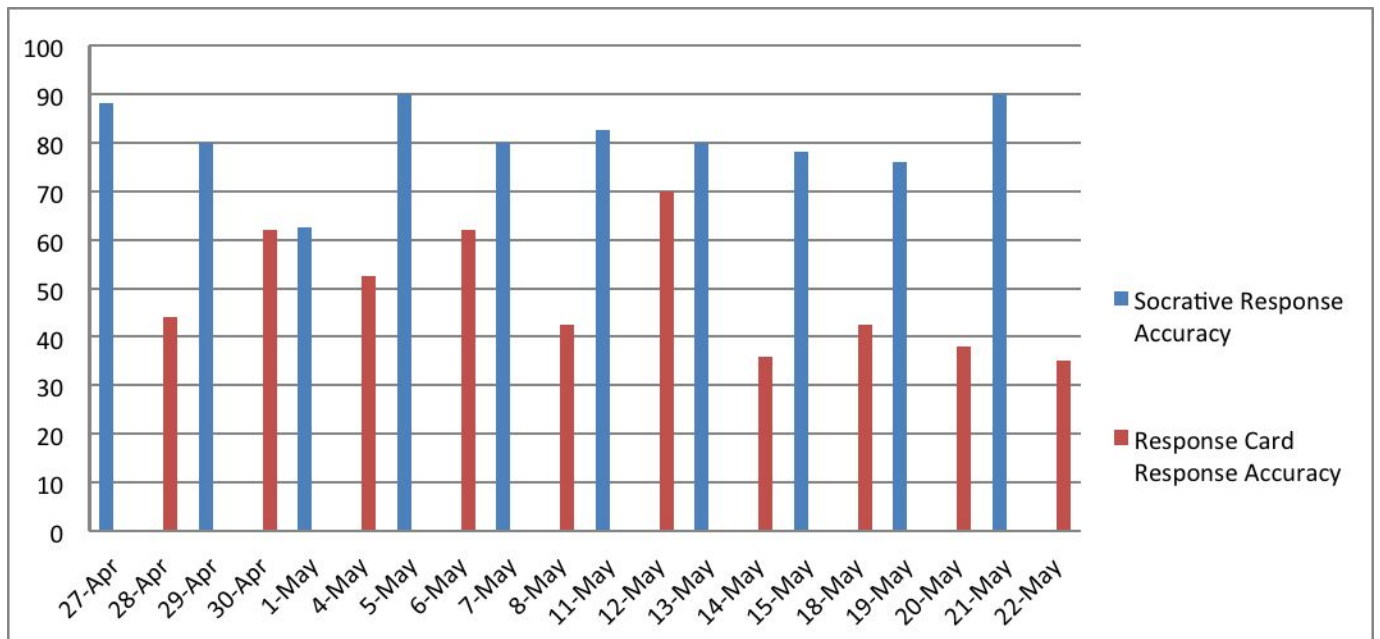


Figure 5. Comparison of the Mean % of Response Accuracy: Socratic vs. Response Cards.

Data was gathered over eight periods using interval recording to analyze student off-task behavior during response methods. The recordings alternated between methods for a period of four weeks. Observers were asked to track off-task behavior such as refusal to attend to tasks or not responding to directions to attend to task (laying head down on desk, staring, engaging in another activity). The interval tracking of off-task behavior occurred every 5 minutes over a 45-minute period. The class periods that involved the Socratic program to complete formative assessment reflected significantly lower amounts of time spent engaging in off-task behavior. The group mean of time spent by students not on task during the Socratic sessions ranged from 8 minutes on the lowest day to 20 minutes on the highest day of off-task behavior recorded (Figure 6). The class periods utilizing the response card method resulted in a heightened amount of off-task behavior. The lowest group average occurred on two consecutive days and resulted in over half the allotted time not engaged in the content, 26 minutes (Figure 6). The highest day of response card off-task behavior was a group average of 42 minutes (Figure 6). The comparison



of the two methods shows that students will display significantly less off-task behaviors using Socrative than response cards.

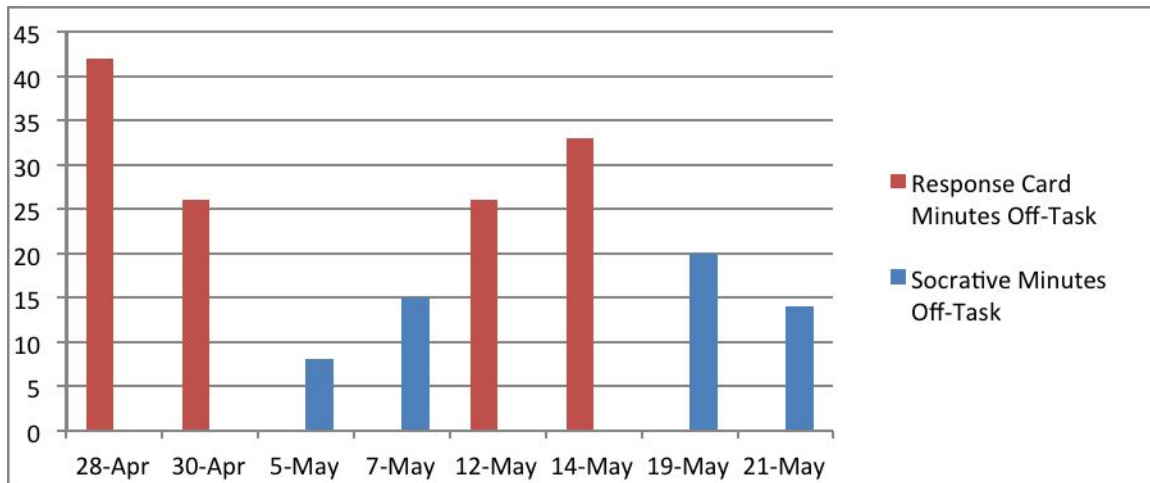


Figure 6. Mean Comparison of Time Off-Task in a 45 Minute Class (Interval Observation).

Students completed a post reflection at the end of the period on the last day of the study. Students rated their overall experience using Socrative and response cards. One meaning they didn't like it at all and 3 being they enjoyed using it. Three students rated Socrative with a three and two students rated the program with a two. Three students rates response cards with a one and two students gave the strategy a two (Figure 7).

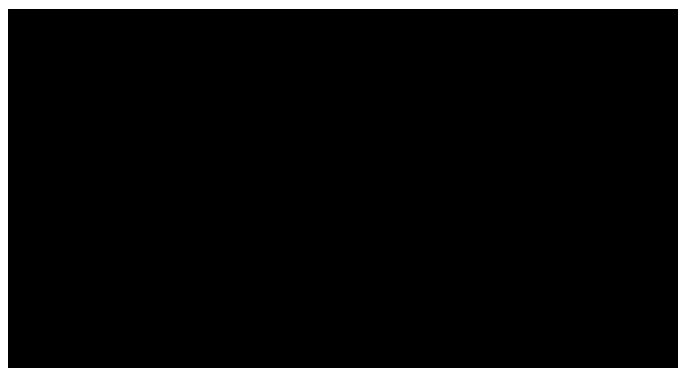


Figure 7. Student preference for using methods.

Students were asked what they liked and did not like about Socrative and response cards. Three students shared that they liked using Socrative simply because they like technology. One student stated, "I like using it because then the iPads are in the room for free time use later in the

day.” Three students noted there was nothing they did not like about Socrative, and one student noted that it was “boring” while another student said they were frustrated while waiting for it to load. Two students shared there was nothing they liked about response cards and three students commented that they like them because they could draw and doodle while they were waiting. Four students stated that they did not like waiting for people to write their answers, one student noted he was easily distracted to draw, and one student commented, “the markers piss me off, I didn’t like my writing and my marker ALWAYS was dried up.”

Students were also asked if there were other ways teachers could assess what they learned. Many students responded with one-word answers, “tests”, “projects”, “nothing”, “you’re the teacher, figure it out”, and “Socrative”. Students were also asked to share anything else they would like the teacher to know to help you learn, two students wrote nothing and other students wrote, “I like technology”, “I need to move around”, and “I get bored easily”.

The data collected in the study has demonstrated that Socrative is a more effective way to increase learning and engagement with the population targeted in this study. Student scores and preferences showed that Socrative outperformed student response cards.

### **Action Plan**

Analyses of our data provided us with a great amount of information to process and translate into knowledge specifically related to our action plan. This course of action led us to identify several variables that could have impacted the study along with new and exciting paths to pursue further research. The conclusions reached in our study of universal response methods have implications in our current teaching and our ongoing pursuit of professional development.

When using response cards on whiteboards in the classroom, it would be beneficial to give clear expectations with the whiteboards. Many students were found drawing on the

whiteboards when they should have been writing the answer. Students would be informed that the whiteboards are to be used for written response only and not for drawing. Students are given the option in our program to take a break to draw but it would not be using the whiteboard.

Another factor that should be considered when utilizing response cards is how questions are administered. When using response cards, the questions were presented verbally, and when using Socratic, the questions were written. Students may get confused, frustrated, or need items repeated when questions are presented orally. The experimental design remained the same aside from one method being electronic, the other being non-electronic, and the questions being presented verbally versus written. All questions were multiple choice and from the same course content.

It would be beneficial to conduct further research in this area to gain more knowledge on technology-based student response systems and the relation to student engagement and learning. It would be helpful to conduct this research for a longer period with a significant number of students to have more data showing a correlation or trend. The time of year should also be considered when conducting this research. Typically there is an increase in off-task and insubordinate behaviors in this particular program at the end of the year.

If further research is conducted with this population, one might gain more insightful reflections from the students if the reflections are done in a 1-1 setting with their case manager. The students have a relationship with this person, and if they do not have to put forth the effort of typing or writing, students may be more apt to give thoughtful responses. More insightful responses could help to increase our understanding of the effectiveness of the intervention methods on student engagement.

Socrative is not the only formative assessment tool available in the educational technology realm. There are many, in fact. Each having similarities and differences that bring positives and negatives to be assessed. Further research may want to investigate alternative forms of technology-based assessments to determine if they are more, less, or equally as effective as Socrative. This research could gain more insight into understanding the effects of technology-based assessment on student engagement and learning.

The results of this action research project have helped us gain a better understanding of effective formative assessment methods along with insight into student perception of these two particular methods. Our recorded data and student reflection input identifies Socrative as the more effective method of formative assessment given the parameters of this study. The fact that technology was perceived as a favorable way to respond was not surprising given the value that students place on cell phones, tablets, computers, and gaming systems. Most students come into the school building with a stronger understanding of technology than the staff working in it. The correlations found between Socrative and increased response and accuracy validate views of technology's place in formative assessment. The more time students are engaged in the course content, the more likely that students are to understand the content, feel confident in their ability to respond, and respond at a higher rate of accuracy. The results of this research have several implications for us as educators moving forward in the future.

The fact that that one singular piece of technology was useful in formative assessment allows us to believe that there is value in pursuing further options to increase student engagement, responses, and accuracy. As stated above, there are several other comparable programs to Socrative that are available on the iPad or other tablets. Each program provides unique options and appeal to students and could be studied further to compare effectiveness.

Another method related to the Socratic style application is the BYOD (Bring Your Own Device) trend that is now occurring in the classroom. Schools are now working to allow technological devices (tablets, smartphones) to be used in the classroom in conjunction with application programs such as Socratic. This method eliminates the school's direct cost to provide tablets for every student, assuming each student could bring in a tablet or smartphone of their own. An exciting connection to our current study would be the comparison of the use of a personal device in school, and it's impacting on off-task behavior. Could students avoid sending or receiving communication during class time? Could students resist accessing social media to avoid distraction? An excellent cross comparison between three response systems to examine factors contributing to off-task behavior/distractibility would be school tablet applications (i.e. Socratic), BYOD, and student response systems (also known as clicker response systems). The nuances between each response system would allow for the positives and negative aspects to be studied further for effectiveness. All of these systems could have a majority role in formative assessment. Devices such as smartphones and tablets are not going away and will, in fact, continue to grow in popularity, capability, and accessibility within the classroom.

The last piece that we took away from our action research is that there is a social/behavioral variable to using student response systems. In the traditional method of hand raising, a student can avoid any attention (positive or negative) by just not raising her or his hand. Using Socratic and response cards, all students are expected to respond. If a student did not answer, the card was left blank or sitting on the desk, which could be seen by many other peers. Socratic also has a dashboard screen that can be projected in front of the class in a game show style if desired. In this study, the screen was not projected. Students could see if they or their peers answered correctly in live time. Settings can be toggled to anonymous on the

dashboard screen, but the competitive nature of the programs could illicit a negative effect if not handled tactfully by the teacher. Technology is an excellent draw to students' attention, organizer of data, and facilitator of assessment, but it can be used ignorantly and incorrectly. We feel motivated to continue our education surrounding technology to grow our ability to utilize the resources we are fortunate to have.

Our data supported that students were more inclined to be successful using the Socrative program to respond via the iPad than the response cards during formative assessment. Responses during the reflection process helped us understand which students were more comfortable using the iPad and Socrative program versus the response cards. Each strategy presented perceived benefits over traditional methods. Socrative's technology integration appealed to students unlike the more traditional response methods of hand raising or pencil and paper. Response cards were a low-cost solution to allow all students to respond to formative assessment quickly. Our data collection reflected the appeal of Socrative in the form of high frequency and accuracy of responses. The Socrative application class periods also showed a high correlation with a reduction in off-task behavior. Our research draws attention to the cohesiveness of formative assessment when it is done in an extremely effective manner. We are encouraged and inspired by the potential that technology holds for us in our classrooms.

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## Appendix A

### Student Reflection

Please complete this survey on our end of class questioning. Please answer each question. You will not be graded on this survey, this is to help us better understand what would help you in class. Thank you for taking the time to complete this! Mrs. Jacoby and Mr. Mathis

**\* Required**

**Do you typically raise your hand and provide answers when the teacher asks questions? \***

- Yes
- No

**Why or why not?**

**Rate your likelihood of answering questions at the end of each class.**

	0	1	2	3	
I will never raise my hand in class to give answers..	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	I always raise my hand in class to give answers.

**Are you engaged at the end of class discussions and questions? \***

- Yes, I listen to what other say and I engage in the conversation
- Sometimes, I usually listen to what other say but I don't engage in the discussion
- No, I don't listen or engage in the discussion.

**Do you like to answer questions when... \***

Check all that apply

- You have to raise your hand



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Student Name: \_\_\_\_\_

Date:	Interval Number									Total times the behavior occurred
	1	2	3	4	5	6	7	8	9	
+ or 0										

### Appendix C

**Formative Assessment Completion Tracking**

Date: \_\_\_\_\_ Class/Period \_\_\_\_\_

<i>Student 1</i>	Questions not attempted	Questions started but not completed	Questions completed
Left class for break			
Bathroom			
Directed to leave/behavior absence			
Walk out			
Other: describe			

<i>Student 2</i>	Questions not attempted	Questions started but not completed	Questions completed
Left class for break			
Bathroom			
Directed to leave/behavior absence			
Walk out			
Other: describe			

<i>Student 3</i>	Questions not attempted	Questions started but not completed	Questions completed
Left class for break			
Bathroom			
Directed to leave/behavior absence			
Walk out			
Other: describe			

<i>Student 4</i>	Questions not attempted	Questions started but not completed	Questions completed
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Left class for break			
Bathroom			
Directed to leave/behavior			
absence			
Walk out			
Other: describe			

<b><i>Student 5</i></b>	Questions not attempted	Questions started but not completed	Questions completed
Left class for break			
Bathroom			
Directed to leave/behavior			
absence			
Walk out			
Other: describe			

Appendix D

**Student Response Tracking**

**Date:** \_\_\_\_\_

**Class/Period:** \_\_\_\_\_

**Formative Assessment Method:** \_\_\_\_\_

Leave unmarked if student does not respond using response card

Mark using “+” if student responds with correct answer

Mark “O” if student responds with incorrect answer

<b>Question/Students</b>	<b>Student 1</b>	<b>Student 2</b>	<b>Student 3</b>	<b>Student 4</b>	<b>Student 5</b>
<b>1</b>					
<b>2</b>					
<b>3</b>					
<b>4</b>					
<b>5</b>					
<b>6</b>					

<b>7</b>					
<b>8</b>					
<b>9</b>					
<b>10</b>					

### Appendix E

#### Student Reflection

Please complete this survey on Socrative and voting cards. Please answer each question. You will not be graded on this survey but it could effect what we do in our classes next year. Thank you for taking the time to complete this! Mrs. Jacoby and Mr. Mathis

**\* Required**

**Rate your overall experience with Socrative \***

1      2      3

I didn't really like it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I enjoyed using it
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**Rate your overall experience with response cards \***

1      2      3

I didn't really like it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I enjoyed using it
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**What did you like about using Socrative? \***

What did you not like about Socrative? \*

An empty rectangular text input box with a thin border. It features four small, light-gray navigation buttons: a left-pointing arrow and a square button at the bottom-left; an up-pointing arrow and a square button at the top-right; a right-pointing arrow and a square button at the bottom-right; and a down-pointing arrow and a square button at the top-left.

What did you like about response cards? \*

An empty rectangular text input box with a thin border. It features four small, light-gray navigation buttons: a left-pointing arrow and a square button at the bottom-left; an up-pointing arrow and a square button at the top-right; a right-pointing arrow and a square button at the bottom-right; and a down-pointing arrow and a square button at the top-left.

What did you not like about response cards? \*

An empty rectangular text input box with a thin border. It features four small, light-gray navigation buttons: a left-pointing arrow and a square button at the bottom-left; an up-pointing arrow and a square button at the top-right; a right-pointing arrow and a square button at the bottom-right; and a down-pointing arrow and a square button at the top-left.

Can you think of any other ways you could communicate with your teacher what you have learned? \*

An empty rectangular text input box with a thin border. It features four small, light-gray navigation buttons: a left-pointing arrow and a square button at the bottom-left; an up-pointing arrow and a square button at the top-right; a right-pointing arrow and a square button at the bottom-right; and a down-pointing arrow and a square button at the top-left.

Is there anything else you would like your teachers to know that could help you learn? \*

