

USING CLICKER TECHNOLOGY TO ASSIST STUDENTS TO MEET IEP MATH GOALS

A Project Presented to
The Faculty of the School of Education
California State University Channel Islands

In Partial Fulfillment
Of the Requirement for the Degree
Masters of Arts

By
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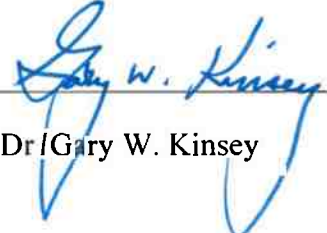
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USING CLICKER TECHNOLOGY TO ASSIST STUDENTS TO MEET IEP MATH GOALS

Title of Item

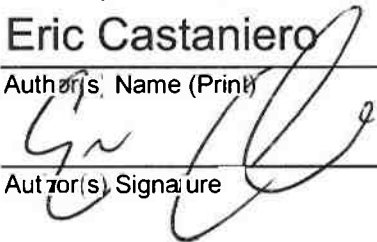
Clickers IEP Goals

3 to 5 keywords or phrases to describe the item

Eric Castaniero

Author(s) Name (Print)

Author(s) Signature



5/9/13
Date

ABSTRACT

This project investigated the effectiveness of students meeting their IEP math goals in a Resource Special Program classroom. The purpose of this research was to determine if using clicker technology and the reteaching of skills would allow students to better meet their IEP goals. Students were assessed using the clicker technology and then reviewed the material as a class due to the statistical feedback from problems. The teacher was then able to reteach material that students completed incorrectly and then reassess to see if their percentage had increased. Results indicate students scored higher the second time they were assessed after using the clickers on the previous assessment. The teacher and students noticed a lower amount of mistakes being made due to the reteaching driven by the clickers and their immediate feedback.

LITERATURE REVIEW

Research has shown that actively engaged students will absorb and retain more content. Research (Berry, 2009, p. 295) has also supported that clickers create an atmosphere of student interaction that enhances critical thinking and the ability to utilize knowledge in the safety of classroom environment.

With clicker technology, the instructor immediately knows whether the students understand the concept being discussed (Ribbens, 2007, p. 60). They also are “a good way to assess students’ existing knowledge or to activate prior knowledge to make it available in working memory for learning” (Reiser & Dempsey, 2007, p.95). An instructor is better able to gauge the pace of instruction and what topics need to be reviewed (Strasser, 2010, p. 50). According to Irons, clickers have the advantage of a direct experiment that does not rely on a computer to generate the events but uses live input (Irons, 2012, p. 16). Clickers support stimulating discussions among students about the plausibility of quiz responses (Fitch, 2004, 73). “Students may use clickers to answer questions in the form of quizzes or self-

assessment, perform instruction or course evaluations and/or attendance records (Kenwright, 2009, p. 75).

Students enjoy using the clicker technology in the classroom. When using the clickers, instructors reported less sleeping and more alert students. Additionally clickers “allow students to respond anonymously so that they are not embarrassed by their answers” (Strasser, 2010, p. 52). Clickers can also help students who “are reluctant to speak up and participate in class due to the potential anticipated social risk of answering either correctly or incorrectly in front of peers” (Blood, 2012, p. 8). Studies have reported that the use of clickers positively transforms the large classroom lecture experience and leads to more responsive instruction and better student understanding (Addison 2009, 91). It is extremely important to capitalize on the popularity of clickers. We must ensure that we teach our students how to utilize technology creatively and critically, if not we could fall into the trap of merely “using gadgets as a mask for impoverished teaching and learning” (Wilhelm, 2010, p. 45). Sprague and Dahl (2010) discovered that students were participating more in their class solely because of the clickers.

Uhari (2003) points out clickers cannot improve a poorly organized lecture or poor direct instruction. According to Beatty (2011) the key variable explaining who succeeds, who muddles along, and who gives up in the face of these universal difficulties are the way the teacher frames the use of clickers in the classroom. There are substantial differences in how clickers are most effectively in different types of classes (Sevian, 2011, p. 100). In 2011, Christopherson completed a study that showed no established difference in grades of psychology students compared to those of other psychology students who used clickers as an assessment tool.

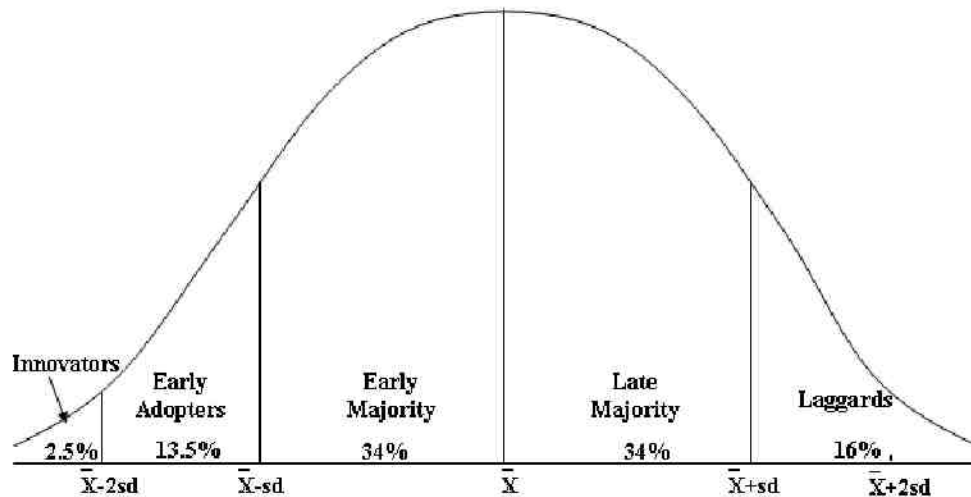
Most of the studies done with versions of clicker technology have been conducted in different college or high school classrooms. Whether psychology or nursing departments, or classes many of the

articles only dealt with college students effectively using the clicker technology. “At many colleges and universities, clickers have become the norm in large science classes” (Sevian, 2011, p. 94). More than a million clickers are in use by college and high school students nationwide (Duncan 2008). It is likely that one in every 10 undergraduates has been exposed to clickers (Sevian, 2011, p. 93). While clickers are used in a variety of ways, this paper’s focus is to elaborate and encourage teachers to use the clicker technology in measuring their student’s IEP math goals at the middle school level.

Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 2003, p. 5). While this theory is applicable in other areas, the focal point of this paper will be on technology in the classroom. For this paper, innovation is defined as any technological advancement that teachers or students can use their room, mainly the clickers. The social system discussed in this paper is the educational system comprised of teachers, administrators and district offices. Rogers’ diffusion of innovations theory is the most appropriate for investigating the adoption of technology in higher education and educational environments (Medlin, 2001; Parisot, 1995). The diffusion theory deals with five different stages, knowledge, persuasion, decision, implementation, and confirmation. Each stage has its own components and importance for all channels to embrace an innovation.

The following chart explains how with change there are select members within a group who accept the challenge of innovations before others. The next group is early adopters who are second and have accepted the innovation only after other individuals on staff have deemed the innovation successful. The third and fourth groups make up the majority of the system, as they wait for the first two groups to embrace the innovations. The last group, the laggards are the last group to embrace the innovation, and often the most defiant for a variety of reasons, however much of that can be attributed to age of teachers and unwillingness embrace new technology (Light, 1998, p. 19). Role models, early

adopters' attitudes toward innovations are more important. Their subjective evaluations about the innovation reach other members of the social system through the interpersonal networks. Early adopters' leadership in adopting the innovation decreases uncertainty about the innovation in the diffusion process (Rogers, 2003, p. 283).



(Source: *Diffusion of Innovations, fifth edition* by Everett M. Rogers. Copyright (c) 2003 by The Free Press. Reprinted with permission of the Free Press: A Division of Simon & Schuster.)

The struggle with implementation of the clickers is very similar to another scenario, implementing microcomputers in the early 1980's. (Rogers, 1985, p. 1) states that "school planning is usually insufficient to adapt microcomputers to the curriculum; introduction of the microcomputer produces a great deal of uncertainty and attendant anxiety in schools that adopt it; and, however "fragile" the microcomputer may be, it is probably not a fad that will pass away." In summary, Rogers (2003) argued that innovations offering more relative advantage, compatibility, simplicity, trialability, and observability will be adopted faster than other innovations. Medlin (2001) Jacobsen (1998) Less' (2003) and Surendra (2001) all used Rogers' diffusion of innovations theory to examine selected factors that might influence a faculty member's motivation and decision to adopt new electronic innovations in classroom instruction.

An area of potential future research would be determining what factors influence the adoption or lack of adoption of clicker technology in schools. The determination of clickers, or any technology could be impacted by the theory of diffusion could be further evaluated on a case-by-case scenario.

MY INVOLVEMENT

On my first day of in service with the Pleasant Valley School District, I attended an in service demonstrating a new technology called “clickers.” The district made a significant purchase of the clickers and software, with each school site getting a shipment of five class complete sets, each with software and thirty-five clickers. I was extremely impressed and immediately began to think of ways I could use this technology in my classroom. However that was during last school year and unfortunately I did nothing with those clickers. Entering my second year at Monte Vista Middle School, I set a goal to become not only familiar with clickers but also use them effectively in my classroom.

At the beginning of the year, I went to my principal and began to ask a variety of questions. I asked which teachers were currently using the clickers, the clicker’s location and how I could find out more information on how to use them during class. He shared that all sets were in the library and he really was not aware if anyone was using clickers in their room. My principal suggested taking a set to my classroom, and sending an email out to the teachers to see if anyone else used clickers. Knowing our staff, we both knew if someone was using them in their classroom, they would be willing to help me. I sent out an email to the staff but did not get the productive response I was hoping. The best response that I received was an email saying to email a former teacher who was now at the District Office for help. I sent that email in the first month of school and have yet to receive any type of response.

I decided I would have to teach myself how to use the clickers in my room. The initial setup did not involve any software installation because the software came preinstalled on my district issued

computer. The clickers used were purchased by the Pleasant Valley School District are from an educational company called Smart Technologies. Besides just experimenting with it on my own, I used the internet as a great resource to help me. There are several youtube.com videos that helped me guide my way as well as using the actual smart website. The address to SmartTech is <http://smarttech.com/>. The link that I found most helpful from the SmartTech website was the support link for my specific type of receiver.

<http://smarttech.com/Support/Browse+Support+Product+Index/Software+Products/SMART+Response+Software/CE>

After much trial and error, I was able to setup everything I needed. Setup included a grade book, students' name, and ID number. After these were setup for my math class, I was able to create an assessment through the Smart Notebook 10 program. This was on a different program than the setup of class and participants but still part of the Smart Tech company software. The two programs are linked and work together to assess the students. Once I followed these steps, my ability to setup other classes was very easy and I began helping other teachers get started with the software and assessment in their classroom.

| Status | Student ID | Last Name | First Name | Average |
|--------------------------|------------|------------|------------|---------|
| <input type="checkbox"/> | 0123456789 | Castaniero | Eric | -- |
| <input type="checkbox"/> | 0987654321 | Castaniero | Anthony | -- |
| <input type="checkbox"/> | *254667300 | Castaniero | Nitza | -- |
| <input type="checkbox"/> | 9876543210 | Castaniero | Joshua | -- |
| <input type="checkbox"/> | | | | |

Anthony Castaniero Properties Performance Results

Student ID: *

First name: *

Last name: *

E mail:

Tags:

Use a semicolon (;) to separate tags
s.g., Honors; IEP

Use a colon (:) to create categorized tags
s.g., Gender: Female; Gender: Male; Previous School:
Westwinds Elementary

* Required

In this screen shot, I have created a class titled CSUCI Test Demo. I have created four students, each with their own ID number and name. From this screen there are several options. Adding students, starting a class, and viewing previous assessment results are all options. The ID numbers are randomly assigned that follow a specific pattern.

The math students I have this year have all been attending Monte Vista for at least the previous year. Prior to this year, they all had the same math teacher, but not during the same time, which allowed the math teacher to establish the mixture of three goals listed below to be shared by the students. Six of the twelve students had the first goal while four had the second goal and two shared the third goal:

Goal 1. By date, given core curriculum materials, the student will use the correct order of operations to evaluate algebraic expressions such as $3(2 + 5)$ with 75% correct for a semester as measured by teacher recorded data.

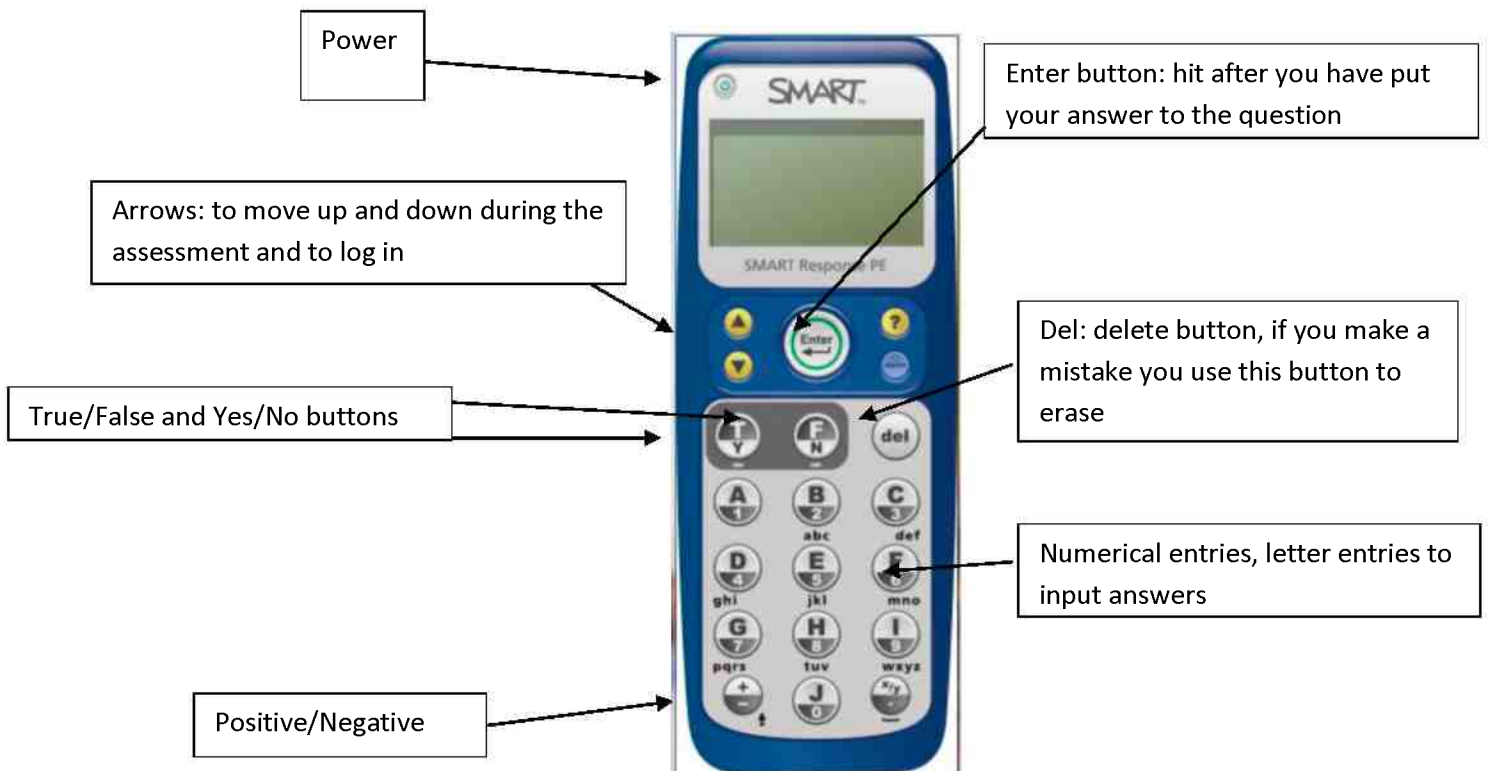
Goal 2. By **date**, given core curriculum materials, **student** will solve two-step linear equations and inequalities in one variable over the rational numbers, interpret the solution in the context, and verify the reasonableness of the results with 75% correct for a semester as measured by teacher recorded data.

3. By **date**: In a classroom setting, **student** will determine when and how to break a problem into simpler parts with 75% correct each opportunity as measured by work samples & observation record.

When giving an assessment I created a five-question assessment relating to the first and second goals listed on the page. The third goal is incorporated into a problem involving any of the first two goals, as students are asked to break down larger terms into smaller terms in order to solve any problem. The ability to master the first goal is needed in order to correctly solve problems that deal with two-step equations. The second goal is differentiated as to be the highest level math problem in the classroom, while the last goal is differentiated to be for the lowest performing student.

PROCEDURE

Before giving students any type of actual assessment I wanted to make sure that they were able to properly use the clicker remotes. Before I passed them out I showed a picture of a clicker (see appendix) and explained what we would be using them for. I set clear expectations and stated if they were to misuse or abuse the clickers, they would lose the privileges of using them. Some of the students had knowledge of the clickers from a previous teacher, so they did not need the tutorial.



Before they received the clickers I showed the students the following buttons.

1. Show the power button, which will be used to turn the clicker on and off. Actually turned on a clicker and let it sit on the Ebeam.
2. Show how to join a class (Scroll with arrows to where it says select class and push enter button
3. Show how to select C7 (My classroom which allows all students to participate in the assessment
4. Show how to login
5. Show the number buttons
6. Show the letter buttons
7. Show the Y for Yes button and the N for the No button
8. Show the T for true button and the F for the false button
9. I then used the Elmo to show my students how to find class, join a class and then enter a student id number

I wrote down their login information on a piece of paper for each individual. I then passed out the clickers to the students and asked them to follow these next steps:

1. Turn the clickers on
2. Click on find a class
3. Students select join C7
4. Students to login based on their identification.

After they joined the class, I was able to make sure that every student had joined the classroom.

Once the students were logged in I gave them a simple quiz of twelve questions that consisted of simple questions not related to math. (See appendix lesson plan number one) The students completed this training and were able to successfully answer the questions. I asked the students if they were comfortable enough using the clickers. After completing the questions we went back over the test and for the most part students were able to answer the questions correctly. There were some minor bumps such as students incorrectly typing a letter or inputting the wrong number for an answer. I explained to the students that we would be using these clickers on a more consistent basis and the next time we did this exercise it would with more math questions.

Every child is given a clicker and pieces of paper at the start of the assessment. The students have already completed a successful training in which they demonstrate the proper way to use the clickers. They have acquired the knowledge of using the clickers through a series of activities that we do in the beginning of the year allowing them to become familiar with the clickers. (See appendix for lesson on trainings). Once the students have logged into the software and have their pieces of paper and pencil they are ready to begin. The students are given five questions and have to show their work on a piece of paper. Each question presented to the students on the overhead is similar to a PowerPoint slide and once the students have answered one question we move to the next. Students are not timed but as a class, we as a class cannot move on until each student has answered the previous question. Additionally they are given a paper to write their answers down to make sure they are inputting their correct response. The teacher's aide collects the papers before we go over the assessment to ensure that no student attempts to change an answer.

Once all students are completed with the assessment, their answers become locked in and we go through the answers to the questions one by one. The software enables us to see how many students answered correctly or incorrectly. Additionally we can see which students chose which answers to every question. Some questions are multiple choice while other answers are fill in the blanks, so depending on the question there can be a variety of answers. The topic in class dictates the variety in student choice, while problems where students show their work are fill in the blanks. (See appendix for sample quizzes).

When reviewing students are immediately able to see what questions they answered correctly and incorrectly. The clickers have a check mark next to incorrect answers while an X is next to correct answers. We review each question individually and if less than 80% of the students responded to the question correctly, I go back and reteach the main concept. If there are more than two problems in a row that have less than 80% correct, I start to redo the problem and ask the students to walk me through the problem. I have the students use a highlighter so they are able to see where they have made their mistake. Once we go through the first five problems, I will give the students another three problems to solve. These problems deal with the same topic that we covered earlier in the class but are a little more difficult and diverse than the first five. Once again students are given problems and extra paper and asked to show their work. Once students have completed they submit their answers electronically and my aide will collect their answers written down on paper, just as was done the previous time. We then review the answers and if the students still are not at 80% correct we will review based on the topic and questions missed.

This review is a mixture of a variety of techniques. The review will reteach the topic in a variety of best practices that have worked in the past with this class. We have used methods such as additional notes, vocabulary flash cards, additional problems together as a class, and the ebeam to help students.

We have also broken into small groups, peer tutor groups, and used personal white boards to help reteach the material.

PREPARATION FOR TEACHERS

Once you have made the decision to implement the clickers in your classroom, the setup and usage should be as stress free as can be. The following steps were ones that I took and that you as a teacher have to decide on your own. While these worked for me, every teacher should think about what will work best for them and their students.

- Check to see you have the software uploaded. Depending upon what clickers you have, you may not need to update once you have uploaded the information. The software that came with you clickers is all that you need. However if you would like to explore the updates, please check with your technology person or department
- Make sure all the necessary parts are included in your box of clickers. You should have clickers, the numbers depends on your set, batteries for each clicker, directions, and a device that plugs into a usb outlet on your computer, this is the receiver that reads the clickers. Make sure when you plug the receiver into the computer, two green lights come up. If green lights do not come up, you may have a problem with you software.



- Place the batteries in all the clickers. Each clicker gets two AA batteries placed in the back of the clicker. This can be time consuming so I had two students whom had detention, assigned from the principal, do this for me.
- Once everything is setup, consider connecting your assessment results to your grade book. Depending upon the grading program that your district offers, you may be able to connect grades transferred from the clicker technology assessments to your grade book if you choose to. For IEP's I know I directly notate the goal percentage and then average the reports for the quarter. You definitely want to check with your technology people to see if they can help you in this area.

The following steps were ones that I took and that you as a teacher have to decide on your own. While these worked for me, every teacher should think about what will work best for them and their students.

- Make sure you have selected the gradebook tab on the screen. Click on the Add a class link, next to the plus sign in the green circle.



- Give your class a name and period. Location is not crucial to the naming of your class but make sure to input the passing grade for you class. Click the add link.



Class Information

Create class lists to save assessment results and track performance.

Class name: *

Period:

Location:

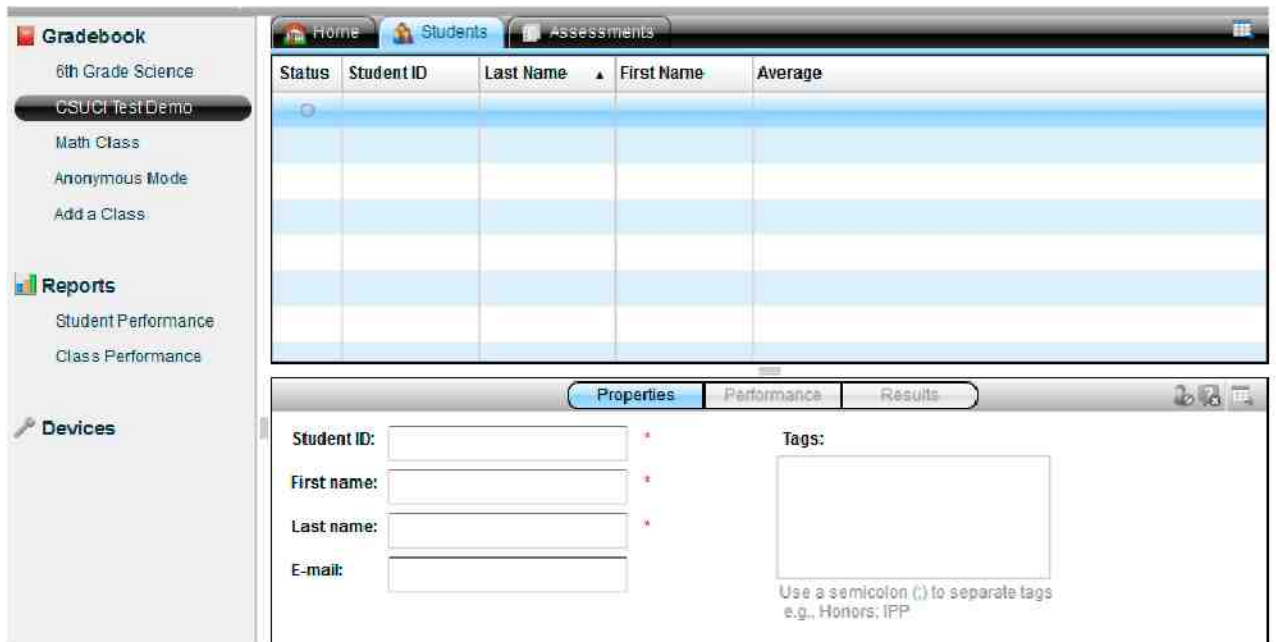
Passing grade: % *

Add

- Once that is done, I have found the easiest way is to go back to the gradebook screen and select the class you want to add students to. Once you have selected the classroom, then select the students tab

- Once you have selected the students tab, click add students. Assign student identification numbers. There are several options here: student ID card, student choice, or your choice of a number. Please remember the identification must be a numerical value.
- Double click the status button and underneath a half screen will pop up asking you to input the students identification number, first name, last name and an optional email address. There is a

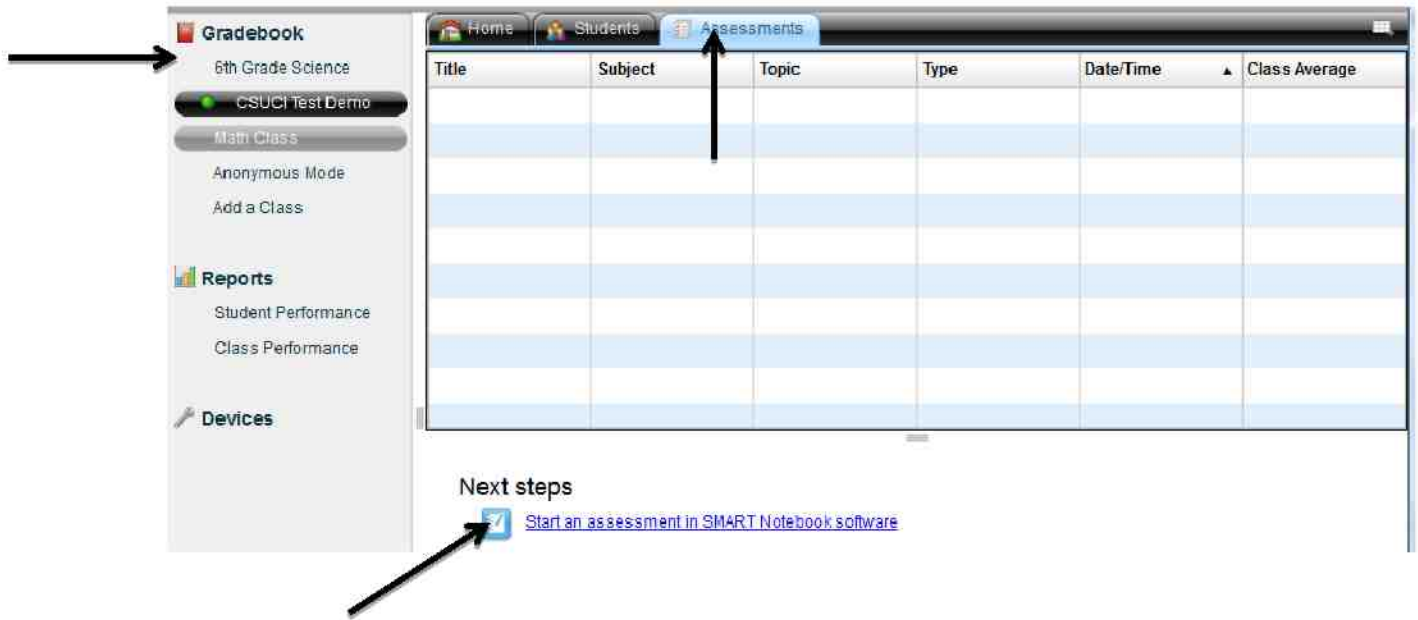
way to import the data from an excel spreadsheet but I was unsuccessful in my attempts to have this completed.



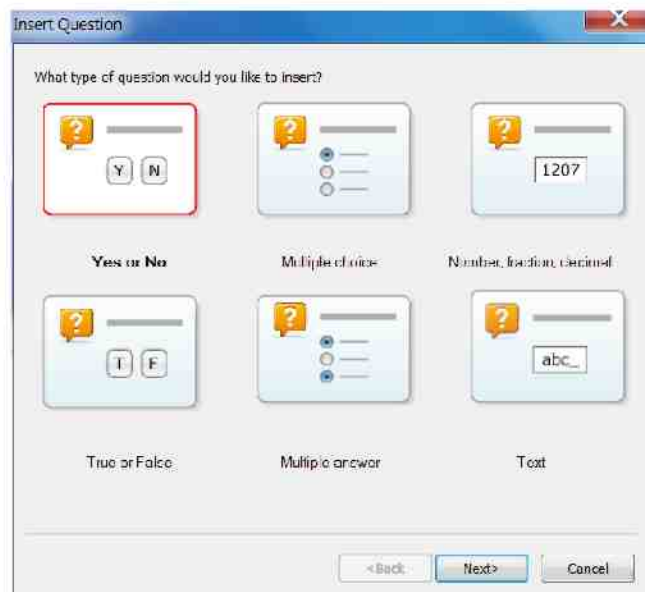
- Once you have completed this information for your students you have now successfully completed the setup of clickers for your class. If you are a self-contained class you can rename your class and import the names as an option.

In order to setup an actual assessment you can follow these steps. As stated before there are other ways that you may discover to be faster, however the ways listed below are personally how I setup my assessments.

- Click on your class on the screen
- Click on the assessment tab
- Click on Start Assessment in SMART NOTEBOOK SOFTWARE



- The software should open up, click on the insert tab and then select insert SMART RESPONSE title page
- Once you have inserted a title page, click back on insert tab and select insert SMART RESPONSE question page.



- Select which type of question you would like to input. For every new question make sure you click on insert SMART RESPONSE question page.

- Once you have completed the amount of questions, be sure to save your file.
- When it comes for assessment time, make sure you select the open software notebook. Plug in the receiver into the usb hub and wait for two green lights to blink. Click on the class starting and then select start class button. Once you have done this you should have students join your classroom and login.



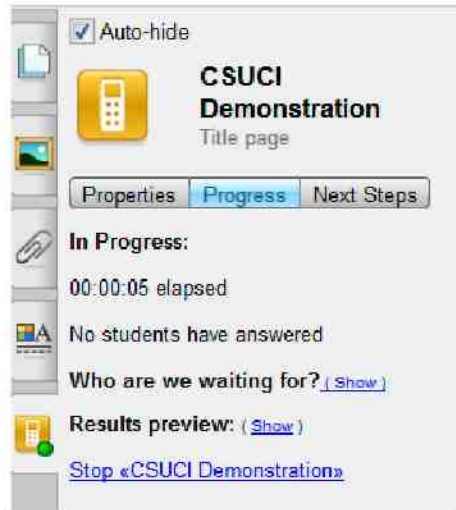
- Open the file that you have saved and then click on the response tab, then select start assessment



- Students should be able to see the number of questions for each assessment. Students answer each question and then click the submit button when they are finished with the assessment.

Students are able to go back through and change any answers until they hit the submit button and enter, once they do that their answers are locked in.

- Once everyone is done you click the finalize assessment and you are completed. Once this is done students are able to see a check mark next to questions they answer correctly and a X next to questions that they missed.



- The yellow remote button is the most important feature once students are done. While the assessment is being conducted this will tell you how many students still need to answer the question. It will never show the name of a student only a number. For example, it will say 5 out of 12 students have answered. While the assessment is going on if you click on the results preview it will show a pie graph of the answers to the question. Once done it will offer different types of graphs for each question.

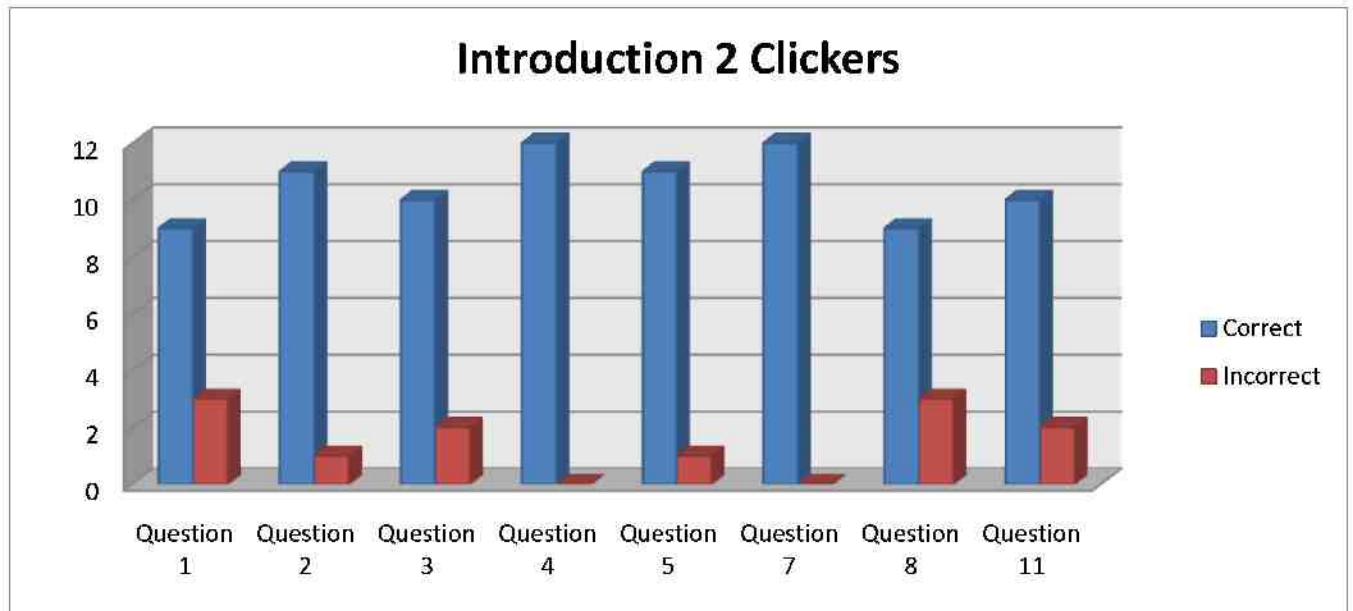
RESULTS

Although we used the clickers more than three times this year, I will only show the data three times for the student because we only had to report three times this year. A fourth time will be done later the last week of school, once grades have been submitted. There were factors came up that prevented

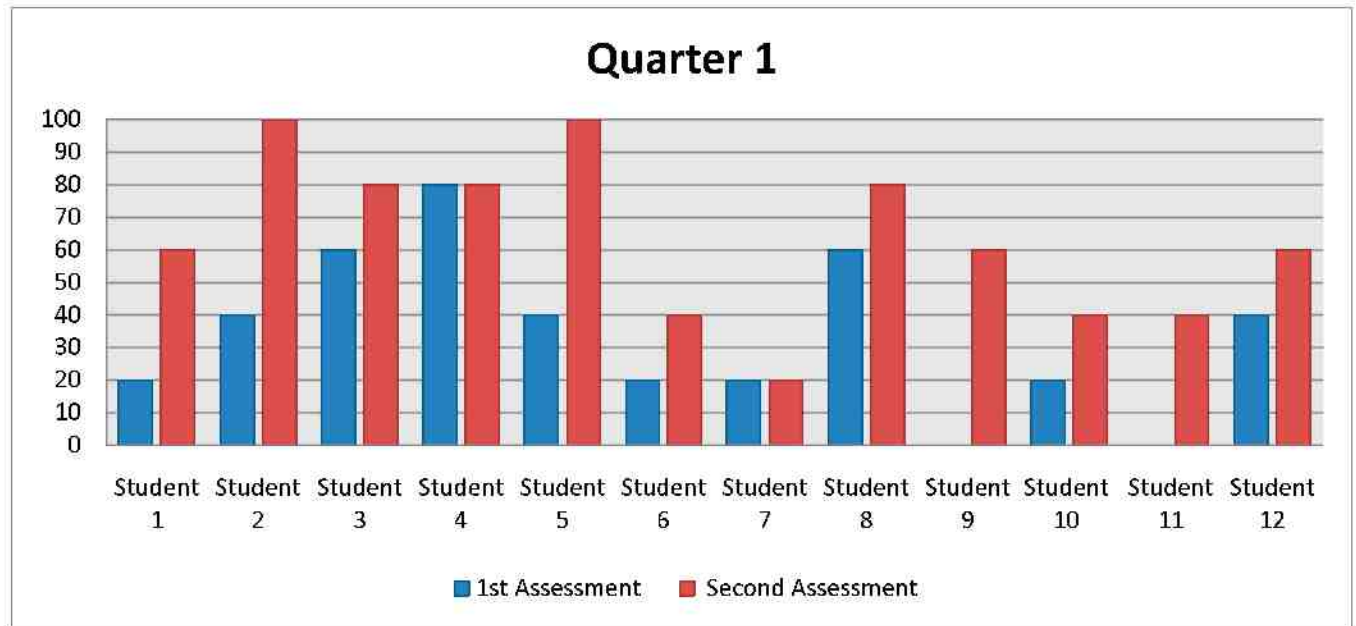
data for all twelve students that started the year in my classroom. Absences was a factor in two of the student's results. Rather than give them a clicker test they were given a hard copy and asked to complete their assessment at a later date. One student was switched math classes before we were able to assess for the third quarter as she had a schedule change.

The quarter one progress was given to the students midway through the quarter. After having established student knowledge on how to use the clickers, I decided to conduct two different trials to reaffirm any doubts or questions that I had on whether or not they knew how to use clickers effectively. I am sharing the first assessment results in the chart below. As you can see students were able to gain after the direct instruction in the material. Out of the three quarters, quarter one was the only time that I had all my students in the class for the entire assessment.

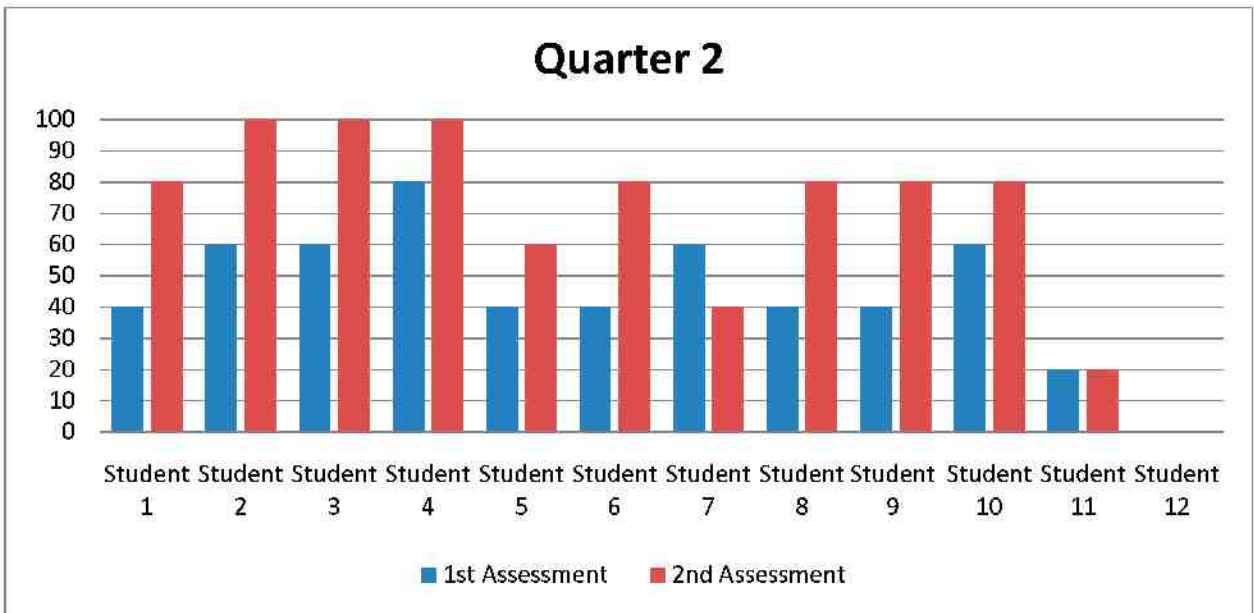
The initial assessment that the students were given at the very beginning of the year with the clickers is below. In addition I also gave each student a number(s) that I wanted them answer incorrectly so I further knew they understood how to use the clickers. The questions that were opinions or they had to put number data into the clickers are not shown, because of the variety of responses that were given in class. For example I could not effectively show who was the student's favorite teacher on this graph.



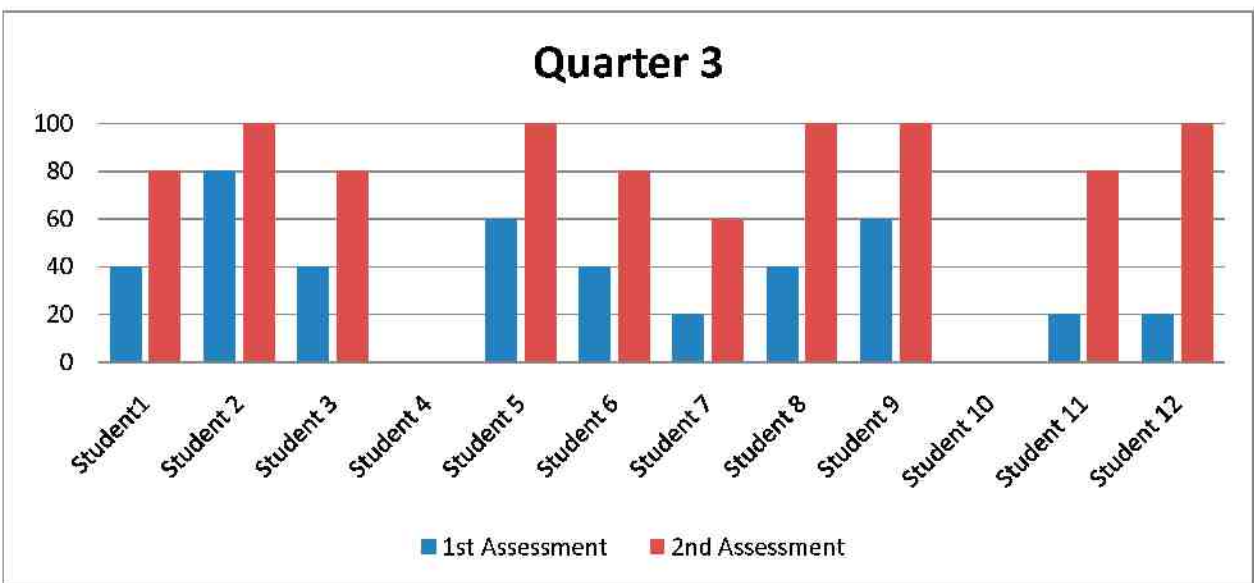
This was the initial assessment given to the students in September. Eleven total questions consisted of a variety of the six types of questions. As evidenced by the data students were able to answer questions correctly. I gave each student a piece of paper with a question number, and asked the students to answer a question incorrectly to show the discrepancy on the chart. Any opinion response will not show because of the variety of responses given in class. For example, I could not effectively show the student's favorite teacher on this graph.



The quarter one graph shows a significant gain for students between their first and second assessments. Out of the twelve students, ten saw a significant gain in their ability to correctly solve problems. The other two individuals, student 4 and student 7, both missed a different style problem on the second assessment than they did on their first assessment. Both students were able to correct their mistakes from the first set of problems, but then forgot another rule and missed a different style of question.



The second assessment provided validity to me in using the Clickers to help in the assessment of my math kids. While not identical the increase in students' scores was similar. Additionally both students, who did not increase in their score, repeated the offense of their counterparts from first quarter, learning from their mistake but making another one elsewhere. Student 12 was not able to participate in the assessment due to absence from school. The student could be assessed later; however, they were assessed in a one to one setting with only a pencil and paper.



The third quarter saw no student get below a sixty percent on the second assessment. Two students were not able to participate in the assessment due to personal reasons. Quarter three was the first quarter in which everyone gained an amount. Some increased slightly while others increased a significant amount.

REFLECTION

Although the process of establishing the clickers in the classroom was time consuming it was extremely effective. If I had to do it all over again, I would do it without any hesitation. I hope that I can use this experience when given new technology at later time in my career. In the future when given a new technology program which may not be similar to the clickers, I hope to draw from the overall process and experience. My hope in creating this manual on how to use the clickers in classrooms, teachers will feel support in setting up and using clickers. Ideally teachers will be more encouraged to use this specific piece of technology and not have to go through a lengthy training. This is truly a great tool, loved by all parties involved. Students get to use a different way to answer questions while teachers do not have to grade so many papers. Assessments are quick, authentic and allow for immediate reteaching. The key is to receive proper training and to make sure that the teacher has all the materials needed to implement this program.

Once the technology is implemented, another overlooked factor is checking in with the teacher to see if the technology is being used. Often teachers are provided new technologies with a quick half-day training, but rarely is a check in done after they have been given time to implement the technology. If teachers come across a problem, it is important they are given a solution and not left with a feeling that they have to figure it out on their own. Teachers are busy and rather than have to take additional time out of their day, it is important they get a quick solution so they are not discouraged from continually using the technology.

Several articles did mention drawbacks or negative aspects of using the clickers. These should be taken into consideration before purchasing the clicker technology due to its cost. The overall cost, maintenance and replacement of the clickers is expensive. While expensive, it offers the opportunity to teach students about responsibility and holds them accountable for school property. In most situations the clickers will be treated appropriately and take care of. Articles also described the considerable amount of time creating an authentic assessment. However, after the initial one, teachers would get better and would be able to save their materials for the next year. Technology difficulties between the computer and the clicker technology are another area of concern. The support of your technology person and other resources are going to be vital in the successful implementation of clicker technology. Teachers must be patient and realize what potential clickers have rather than become frustrated and quit.

Of course as with any new technology introduced into the classroom, the setup is the most important. Although some of my students did have some knowledge of the clickers before we used them, I treated everyone the same and showed them the steps. Once the students were comfortable using the clickers they were excited to use them and were disappointed when we did not use them. Any fear that I had of the students not being able to successfully use this technology was quickly erased as they demonstrated their ability to grasp technology terms fast.

As the year has gone on, creating the assessments is becoming easier and easier for me. What once took thirty minutes could now be done in about five minutes. My students have become much better as well, as they can login, join a class and be ready to start an assessment by the time I have passed out the pages for them to show their work. I have found myself still not knowing how to do everything with the clickers but I know far more now than I did before I started this project and school year. There are still several components of this program that I would like to get to know, but that will come with time, practice and hopefully a little training.

My hope is that in reading this manual you are able to setup your clicker technology in the classroom and implement it successfully. If you become frustrated, I hope that you have been able to find an answer or find somewhere an answer can be given to you. The struggles that you have gone through are ones that I have experienced and although I did not include all the stories, I hope you draw from experience to realize what potential these clickers have in your classroom. While tests are different, the format has always been the same. No matter what subject, teacher, or grade level, a test is a test. However by using the clicker technology, maybe we can convince students that some are more fun than others.

There have been several bumps along the way, even after I thought I had everything figured out. Problems arose from not having the clickers connect to the receiver, to the students signing in wrong. There have been several times where I considered just giving up on the whole project. At times it was very hard and frustrating to attempt to use technology that was supposed to make my job easier but was taking a lot of my time. I am glad I decided to stay with it as I have been able to help other teachers as well and ease their frustration level with the clickers.

All in all the overall process was a success. The students demonstrated a knowledge of their IEP goal as well as the ability to solve the other problems on the assessment. As expected the students would miss a number of the first five questions which would give us a baseline for how they were doing. After the direct instruction from me, we would then take the quiz again and see a significant jump in percentage correct. Students were not given homework on this topic and it took a total of 30 minutes each class. We would not review unless problems of linear equations and order of operations were part of the curriculum.

APPENDIX

Education Specialist : Mild/Moderate Disabilities**Long Lesson Plan Format****CSUCI**

Designer: Eric Castaniero

Date of Lesson: September 17th 2012

Grade/Level and Group size: 7/8th grade RSP Math Class 11 students

Time Frame/Subject(s): 100 minute period/ 30 minute block

Topic(s): **Familiarity with clickers**

Planning and Preparation to Teach

Purpose of Lesson: Why are you teaching this lesson? How will the skills be useful to the students? How does this lesson relate to overall unit?

I am teaching this first lesson to build familiarity for my students with a clicker device. This will become useful throughout the year so that students know how to properly use the clickers to respond appropriately to the questions. This skill will help them answer questions and become familiar with a new piece of technology on campus. While the questions will have a lighter side to the students, the teacher, at the same time will be reviewing questions that will help the students better understand how to properly use the clickers.

Standards Addressed: Grade level standards you are addressing. Backwards mapped standards that match ability level if lower than grade level

7th Grade

1.2 Use the correct order of operations to evaluate algebraic expressions such as $3(2x + 5)$.

Learning Objective(s): What should all learners be able to do as a result of this lesson? Use the phrase, the student will be able to (TSWBAT). The objective should reflect the skills, concepts or content the student will learn. The objective should be measurable.

The students will be able to respond to questions and input the correct answer into the computer program using clicker technology.

Materials Required: Items not normally accessible in your teaching setting

None

Context for Learning: How will students be organized? Small group, whole group, independent work etc. Why?

Students will be organized in their normal seating arrangement. In the classroom we have the maximum of having two students sit per table with a total of about 11 tables in the classroom. Normal seating spaced out through the classroom, which will allow myself and my teaching assistant to walk the room and help any student with a question.

PRE-LESSON ASSESSMENT DATA

(Must be completed for each student in group)

Student Name: Eric Castaniero

IEP Goal/Objective: What IEP goal is being addressed in this lesson?

By 5/17/2012 In a classroom setting, Eric will solve problems using the correct order of operations with 70% correct each opportunity as measured by work samples & observation record.

Behavioral Support: Describe any behavioral supports needed for this student, include seating, behavior plans, instructional adaptations to account for behavior

On task reminders, catch being good, choice of seat.

PREPARE STUDENTS FOR INSTRUCTION

Preinstruction/anticipatory set:

Students will be working on a review worksheet. While they are working on this worksheet I will come by and place a clicker on their desk. I will then also pass out sheets of paper for students to show their work and also an answer guide so they can write down their answers on.

Inform students of learning objective:

Once everyone is done with the review worksheet, explain to students what we will be doing with the clickers. Let them know that they will not be graded on this activity but it is a learning process for both of us. Later on in the year the students will be expected to answer on these tools a variety of ways.

Preteach or Reteach:

Remind them of the responsibilities and expectations when we are using the clickers. Explain to them that they are to answer each question to the best of their ability, and honestly no matter how easy or hard a question maybe. No one should intentionally answer a question wrong in order to be funny or throw off the data.

INSTRUCTION

Ask students to remove the plastic wrapping from the clicker and place it off to the side. Ask student to follow along as I show them several of the features of the clicker such as:

Power On/Off

Numerical Value

True/False Answers

Yes/ No Answers

Letter input

LogIn

LogOut

I will put the picture on the white board of the clicker that is attached at the end of the lesson. Using a laser pointer I will highlight how to do these features. Once I have done this I will ask them to follow along as we turn on the clickers and log into my class. We then will start the assessment with the following questions:

1. Type the name of your school?
2. What is the mascot of the school?
 - A. Bull
 - B. Hawk
 - C. Torro
 - D. Laker
3. How many periods of school, not including lunch or SSR do we have in a day?
4. True or False: Mr. Castaniero has his name made in legos in his room
5. Yes or No: You are sitting in C7
6. What is your favorite TV Show?
7. What does the A stand for in PEMDAS?
8. $26+36+66=$
9. How many people are students at Monte Vista?
10. How many PE teachers are there at Monte Vista?
11. True or False: The E in PEMDAS stands for exponents
12. Other than Mr. Castaniero, who is your favorite teacher at Monte Vista?

Cognitive Modeling:

Review the expectations for the lesson, distribute extra paper for students to answer the question and show work on.

Guided Practice:

Students ability to answer the question that is presented on the slide for them.

Check for Understanding:

Looking at the data in the form of a pie chart to make sure students have an understanding of the correct answer.

Independent Practice:

Independent Practice is once the slide is presented and the students work on answering the questions independently.

ASSESSMENT

Assessment of Learning Objective(s):

For this first assessment the data is not extremely important, I just want to emphasize the importance of correctly using the clickers. Since it will be in the anonymous mode I will not be able to extract the data by individual, only the entire group. The exercise will be a success if the students are able to login, answer questions, logout and successfully put the clickers away.

CLOSUREWhole group:

Thanking them for participating and telling them that I hope this is the start to using the clickers on a regular basis. Review each question with students and identify correct answers. Ask what mistakes were made and go over what mistakes were seen by myself while the assessment was being given.

Individuals:

For this first assessment we are completing it as a group so the students are unable to work ahead.

PARAPROFESSIONAL SUPPORT

Have the paraprofessional walk the room and help the students make sure they are following along with the instruction. Once the test is done the para will verify that their answers they wrote match the ones on the screen.

ADAPTATIONS/MODIFICATIONS and ENGLISH LEARNERS

Additional individual student needs: None needed

Education Specialist : Mild/Moderate Disabilities

Long Lesson Plan Format

CSUCI

Designer: Eric Castaniero

Date of Lesson: November 15th 2012

Grade/Level and Group size: 7/8th grade RSP Math Class 12 students

Time Frame/Subject(s): 100 minute period/ 30 minute block

Topic(s): **IEP Goal Assessment #1**

Planning and Preparation to Teach

Purpose of Lesson: Why are you teaching this lesson? How will the skills be useful to the students? How does this lesson relate to overall unit?

I am teaching this part of the lesson to assess the student's ability to correctly complete their IEP goal in math. I will also be able to reteach any part of the lesson that they answer incorrectly hopefully having them obtain a passing rate on their IEP goal for the quarter. I am not teaching anything new, only reviewing a portion of what we have covered over the past quarter.

Standards Addressed: Grade level standards you are addressing. Backwards mapped standards that match ability level if lower than grade level

7th Grade

1.2 Use the correct order of operations to evaluate algebraic expressions such as $3(2x + 5)$.

Algebra

4.0 Students simplify expressions before solving linear equations and inequalities in one variable, such as $3(2x-5) + 4(x-2) = 12$.

Learning Objective(s): What should all learners be able to do as a result of this lesson? Use the phrase, the student will be able to (TSWBAT). The objective should reflect the skills, concepts or content the student will learn. The objective should be measurable.

The students will be able to respond to questions correctly that deal with solving equations with variables with a rate of 60% or higher. Students should be able to solve a multistep problem correctly completing order of operation problems demonstrating their knowledge of these types of problems.

Materials Required: Items not normally accessible in your teaching setting

None

Context for Learning: How will students be organized? Small group, whole group, independent work etc. Why?

For this activity students will be separated into individual tables. While the desks will not move the students will move away from their two people per table. Tables are setup throughout the room, all allowing for students to be able to see the board with no restrictions.

PRE-LESSON ASSESSMENT DATA

(Must be completed for each student in group)

Student Name: Eric Castaniero

IEP Goal/Objective: What IEP goal is being addressed in this lesson?

By 1/11/2013 given core curriculum materials, the student will use the correct order of operations to evaluate algebraic expressions such as $3(2 + 5)$ with 75% correct for a semester as measured by teacher recorded data.

Behavioral Support: Describe any behavioral supports needed for this student, include seating, behavior plans, instructional adaptations to account for behavior

On task reminders, catch being good, preferential seating

PREPARE STUDENTS FOR INSTRUCTION**Preinstruction/anticipatory set:**

As student begin to walk into my room, I will be standing at the door, saying good morning and asking them to sit one person per table. Students will be walking into the classroom and there will be one clicker per table with twelve clickers being passed out. On the board, there will be a note that reminds the students to site one person per table along with a tablet of scratch paper for students to complete their work. There will be a question on the board that asks the students, what they will be doing over Thanksgiving Break? There will also be directions as to not share but be expected to share if they want. Plug in the clicker receiver, wait for the two green lights and start the math class.

Inform students of learning objective:

After giving the students 3 minutes, time to turn in their homework and time for me to take attendance and check in with my aide, I will ask if anyone wants to share. After letting 3 people share I will spend about 2 minutes sharing my plans. After the third person has shared I will say we can continue this

conversation later if everyone does well. This will allow for students to relax and not feel pressure on what we are going to do.

Preteach or Reteach:

Explain the responsibilities and expectations when we are using the clickers. Explain to them that they are to answer each question to the best of their ability. Remind them of the process and ask them to get out their ID cards.

INSTRUCTION

Ask students to remove the plastic wrapping from the clicker and place it off to the side. Ask student to turn on the clickers and go to the login in screen and wait for further direction. Once they have gotten to their screen please login using your student ID. IF any student does not have their ID card, my aide will walk around and point out their login in to the student. The student then acknowledges that they have logged in correctly by accepting their ID.

Once all the students have logged in and are ready to begin, I will turn on the projector and the first question will come up on the projector and students are to show their work. Once everyone has responded move onto the next question until all five questions have been answered. Collect the scratch paper, ensuring the students have matching answers and work that corresponds. The aide and the teacher should be walking around the room making sure students are able to show their work and answer rather than just guessing.

5 Questions to Begin

1. $3x + 6 = 18$

2. $4(x - 6) = 24$

3. $2(x - 11) + 2(x + 7) = 4$

4. $\frac{x}{4} + 7 - 2 = 6$

5. $3x - 6 = 19 - 2x$

2nd Set of Questions

1. $2z + 8 = 24$

2. $3(y - 8) = 31$

3. $4(b - 2) + 3(b + 2) = 51$

4. $\frac{x}{4} + 12 = 13$

6

5. $3x - 6 = 18 - 2x$

Once those questions have been answered look at the results. Go over each question highlighting the process and identify where each incorrect step was made.

Cognitive Modeling:

Role Model with the students how to correctly answer the questions by showing all work and boxing answers. Remind students that each question is its own sheet of paper with the number and answer as well as the shown work.

Check for Understanding:

As the problems are being answered by the whole group, check for understanding by asking questions of students and speculating as to where they might have made a mistake.

Independent Practice:

Once this has been done students will complete a new set of 5 problems individually.

ASSESSMENT

Assessment of Learning Objective(s):

A comparison of data between their first quiz and their second quiz. I will then compare that data to the their IEP to determine if they have met their IEP goal.

CLOSURE

Whole group:

Thanking them for participating and remind them that they do not have homework over break unless they have any missing assignments.

Individuals:

As they leave my classroom remind them to have a safe and fun break individually.

PARAPROFESSIONAL SUPPORT

Have the paraprofessional walk the room and help the students make sure they are able to log on to begin the assessment quiz. Once the quiz is completed, the assistant will compare the answers on the clickers to the students work. The assistant will collect both as we being with the second half of our block schedule.

ADAPTATIONS/MODIFICATIONS and ENGLISH LEARNERS

Additional individual student needs:

None needed

Education Specialist : Mild/Moderate Disabilities

Long Lesson Plan Format

CSUCI

Designer: Eric Castaniero

Date of Lesson: January 15th 2013

Grade/Level and Group size: 7/8th grade RSP Math Class 11 students

Time Frame/Subject(s): 100 minute period/ 30 minute block

Topic(s): **IEP Goal Assessment #2**

Planning and Preparation to Teach

Purpose of Lesson: Why are you teaching this lesson? How will the skills be useful to the students? How does this lesson relate to overall unit?

I am teaching this lesson to obtain a data score for students on their math IEP goal. We will be reviewing equations, simplifying and breaking down problems into smaller parts. This skill which is a skill on their IEP is also a state standard and students will be tested on their state testing in May. This lesson is a separate unit within our current unit but has been touched upon in previous classes, we spent a day before Winter Break reviewing a variety of terms, and this was one.

Standards Addressed: Grade level standards you are addressing. Backwards mapped standards that match ability level if lower than grade level

7th Grade

1.2 Use the correct order of operations to evaluate algebraic expressions such as $3(2x + 5)$.

Algebra

4.0 Students simplify expressions before solving linear equations and inequalities in one variable, such as $3(2x-5) + 4(x-2) = 12$.

Learning Objective(s): What should all learners be able to do as a result of this lesson? Use the phrase, the student will be able to (TSWBAT). The objective should reflect the skills, concepts or content the student will learn. The objective should be measurable.

The students will be able to respond to questions and input the correct answer into the computer program using clicker technology. By the end of the section students will be able to solve questions involving expressions with an eighty percent correct percentage.

Materials Required: Items not normally accessible in your teaching setting

None

Context for Learning: How will students be organized? Small group, whole group, independent work etc. Why?

For this activity students will be separated into individual tables. While the desks will not move the students will move away from their two people per table. Tables are setup throughout the room, all allowing for students to be able to see the board with no restrictions.

PRE-LESSON ASSESSMENT DATA

(Must be completed for each student in group)

Student Name: Eric Castaniero

IEP Goal/Objective: What IEP goal is being addressed in this lesson?

By date, given core curriculum materials, student will solve two-step linear equations and inequalities in one variable over the rational numbers, interpret the solution in the context, and verify the reasonableness of the results with 75% correct for a semester as measured by teacher recorded data.

Behavioral Support: Describe any behavioral supports needed for this student, include seating, behavior plans, instructional adaptations to account for behavior

On task reminders, catch being good, choice of seat.

PREPARE STUDENTS FOR INSTRUCTION**Preinstruction/anticipatory set:**

As student begin to walk into my room, I will be standing at the door, saying good morning and asking them to sit one person per table. Students will be walking into the classroom and there will be one clicker per table with twelve clickers being passed out. On the board, there will be a note that reminds the students to site one person per table along with a tablet of scratch paper for students to complete their work. There will be a question on the board that asks the students, what was the best part about your winter break. There will also be directions not to share but be expected to share if they want. Plug in the clicker receiver, wait for the two green lights and start the math class.

Inform students of learning objective:

After giving the students 3 minutes, time to turn in their homework and time for me to take attendance and check in with my aide, I will ask if anyone wants to share. After letting 3 people share I will spend about 2 minutes sharing my plans. After the third person has shared I will say we can continue this

conversation later if everyone does well. This will allow for students to relax and not feel pressure on what we are going to do.

Preteach or Reteach:

Explain the responsibilities and expectations when we are using the clickers. Explain to them that they are to answer each question to the best of their ability. Remind them of the process and ask them to get out their ID cards

INSTRUCTION

Ask students to remove the plastic wrapping from the clicker and place it off to the side. Ask student to turn on the clickers and go to the login in screen and wait for further direction. Once they have gotten to their screen please login using your student ID. IF any student does not have their ID card, my aide will walk around and point out their login in to the student. The student then acknowledges that they have logged in correctly by accepting their ID.

Once all the students have logged in and are ready to begin, I will turn on the projector and the first question will come up on the projector and students are to show their work. Once everyone has responded move onto the next question until all five questions have been answered. Collect the scratch paper, ensuring the students have matching answers and work that corresponds. The aide and the teacher should be walking around the room making sure students are able to show their work and answer rather than just guessing.

Guided Practice:

Have students turn on clickers and log into my class, C7, and wait to begin. We will start once everyone has logged in.

Check for Understanding:

Make sure students are logged in successfully. Make sure they have all of their supplies and are ready to begin the first five questions.

Independent Practice:

Once students are logged in and ready to start, have students answer slide by slide the following questions.

1st set of questions

1. $6x + 12 = 36$

2. $3(x - 2) = 24$

$$3. \frac{x}{2} - 4 = 8$$

$$4. 3(x - 1) + 2(x + 4) = 35$$

$$5. 4x + 8 = 2x - 10$$

2nd set of questions

$$1. 2 + 3x = 26$$

$$2. 2(x + 1) = 17$$

$$3. \frac{x}{4} + 3 = 12$$

$$4. 4(-1 + x) + 4(x + 4) = 28$$

$$5. 2x + 15 = 7x - 2x + 10$$

Once those questions have been answered look at the results. Go over each question highlighting the process and identify where each incorrect step was made.

Cognitive Modeling:

Role Model with the students how to correctly answer the questions by showing all work and boxing answers. Remind students that each question is its own sheet of paper with the number and answer as well as the shown work.

Check for Understanding:

As the problems are being answered by the whole group, check for understanding by asking questions of students and speculating as to where they might have made a mistake.

Independent Practice:

Once this has been done students will complete a new set of 5 problems individually.

ASSESSMENT**Assessment of Learning Objective(s):**

A comparison of data between their first quiz and their second quiz. I will then compare that data to the their IEP to determine if they have met their IEP goal.

CLOSURE**Whole group:**

Thanking them for participating and remind them that they do not have homework over break unless they have any missing assignments.

Individuals:

As they leave my classroom remind them to have a safe and fun break individually.

PARAPROFESSIONAL SUPPORT

Have the paraprofessional walk the room and help the students make sure they are able to log on to begin the assessment quiz. Once the quiz is done the assistant will compare the answers on the clickers to the students work. The assistant will collect both as we begin with the second half of our block schedule.

ADAPTATIONS/MODIFICATIONS and ENGLISH LEARNERS

Additional individual student needs:

None needed

Education Specialist : Mild/Moderate Disabilities**Long Lesson Plan Format****CSUCI**

Designer: Eric Castaniero

Date of Lesson: March 27th 2013

Grade/Level and Group size: 7/8th grade RSP Math Class 11 students

Time Frame/Subject(s): 100 minute period/ 30 minute block

Topic(s): **IEP Goal Assessment #3**

Planning and Preparation to Teach

Purpose of Lesson: Why are you teaching this lesson? How will the skills be useful to the students? How does this lesson relate to overall unit?

I am teaching this lesson to once again obtain a data score for students on their math IEP goal. We will be reviewing equations, simplifying and breaking down problems into smaller parts. This skill which is a skill on their IEP is a state standard and students will participate in state testing in May. This mini-lesson is a separate unit within our current unit but has been touched upon in previous classes, but since the quarter is ending the last day of class will be a review before spring break.

Standards Addressed: Grade level standards you are addressing. Backwards mapped standards that match ability level if lower than grade level

7th Grade

1.2 Use the correct order of operations to evaluate algebraic expressions such as $3(2x + 5)$.

Algebra

4.0 Students simplify expressions before solving linear equations and inequalities in one variable, such as $3(2x-5) + 4(x-2) = 12$.

Learning Objective(s): What should all learners be able to do as a result of this lesson? Use the phrase, the student will be able to (TSWBAT). The objective should reflect the skills, concepts or content the student will learn. The objective should be measurable.

The students will be able to respond to questions and input the correct answer into the computer program using clicker technology. By the end of the section students will be able to correctly solve questions involving expressions with eighty percent correct.

Materials Required: Items not normally accessible in your teaching setting

None

Context for Learning: How will students be organized? Small group, whole group, independent work etc. Why?

For this activity students will be separated into individual tables. While the desks will not move the students will move away from their two people per table. Tables are setup throughout the room, all allowing for students to be able to see the board with no restrictions.

PRE-LESSON ASSESSMENT DATA

(Must be completed for each student in group)

Student Name: Eric Castaniero

IEP Goal/Objective: What IEP goal is being addressed in this lesson?

In a classroom setting, students will determine when and how to break a problem into simpler parts with 75% correct each opportunity as measured by work samples & observation record.

Behavioral Support: Describe any behavioral supports needed for this student, include seating, behavior plans, instructional adaptations to account for behavior

On task reminders, catch being good, choice of seat.

PREPARE STUDENTS FOR INSTRUCTION

Preinstruction/anticipatory set:

As student begin to walk into my room, I will be standing at the door, saying good morning and asking them to sit one person per table. Students will be walking into the classroom and there will be one clicker per table with twelve clickers being passed out. On the board, there will be a note that reminds the students to sit one person per table along with a tablet of scratch paper for students to complete their work. There will be a question on the board that asks the students, what is the part of spring break that you are most looking forward to? There will also be directions not to share but be expected to share if they want. Plug in the clicker receiver, wait for the two green lights and start the math class.

Inform students of learning objective:

After giving the students 3 minutes, time to turn in their homework and time for me to take attendance and check in with my aide, I will ask if anyone wants to share. After letting 3 people share I will spend about 2 minutes sharing my plans. After the third person has shared I will say we can continue this

conversation later if everyone does well. This will allow for students to relax and not feel pressure on what we are going to do.

Preteach or Reteach:

Explain the responsibilities and expectations when we are using the clickers. Explain to them that they are to answer each question to the best of their ability. Remind them of the process and ask them to get out their ID cards

INSTRUCTION

Ask students to remove the plastic wrapping from the clicker and place it off to the side. Ask student to turn on the clickers and go to the login in screen and wait for further direction. Once they have gotten to their screen please login using your student ID. IF any student does not have their ID card, my aide will walk around and point out their login in to the student. The student then acknowledges that they have logged in correctly by accepting their ID.

Once all the students have logged in and are ready to begin, I will turn on the projector and the first question will come up on the projector and students are to show their work. Once everyone has responded move onto the next question until all five questions have been answered. Collect the scratch paper, ensuring the students have matching answers and work that corresponds. The aide and the teacher should be walking around the room making sure students are able to show their work and answer rather than just guessing.

Guided Practice:

Have students turn on clickers and log into my class, C7, and wait to begin. We will start once everyone has logged in.

Check for Understanding:

Make sure students are logged in successfully. Make sure they have all of their supplies and are ready to begin the first five questions.

Independent Practice:

Once students are logged in and ready to start, have students answer slide by slide the following questions.

1st set of questions

1. $19 = 1 + 3x$

2. $2(x - 7) = 8$

$$3. \frac{x}{5} + 15 = 35$$

$$4. 6(x - 2) + 2(x + 2) = 32$$

$$5. x + 4 = 2x - 10$$

2nd set of questions

$$1. 2x - 6 = 26$$

$$2. 3(2x + 3) = 51$$

$$3. \frac{x}{2} + 3 - 2 = 6$$

$$4. 2(-2 + 2x) + 3(2x + 2) = 102$$

$$5. 2x + 15 + 9 = 5x$$

Once those questions have been answered look at the results. Go over each question highlighting the process and identify where each incorrect step was made.

Cognitive Modeling:

Role Model with the students how to correctly answer the questions by showing all work and boxing answers. Remind students that each question is its own sheet of paper with the number and answer as well as the shown work.

Check for Understanding:

As the problems are being answered by the whole group, check for understanding by asking questions of students and speculating as to where they might have made a mistake.

Independent Practice:

Once this has been done students will complete a new set of 5 problems individually.

ASSESSMENT**Assessment of Learning Objective(s):**

A comparison of data between their first quiz and their second quiz. I will then compare that data to the their IEP to determine if they have met their IEP goal.

CLOSURE**Whole group:**

Thanking them for participating and remind them that they do not have homework over break unless they have any missing assignments.

Individuals:

As they leave my classroom remind them to have a safe and fun break individually.

PARAPROFESSIONAL SUPPORT

Have the paraprofessional walk the room and help the students make sure they are able to log on to begin the assessment quiz. Once the quiz is done the assistant will compare the answers on the clickers to the students work. The assistant will collect both as we begin with the second half of our block schedule.

ADAPTATIONS/MODIFICATIONS and ENGLISH LEARNERS

Additional individual student needs:

None needed

REFERENCES

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