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IT5990
Assessment and Technology
"CPS Systems"

Introduction

In February 2004, I applied for a grant from the Cherry Creek Foundation to purchase the Classroom Performance System (CPS). The grant I wrote was entitled "R.E.A.C.T.", Reaching Educational Achievement through Computer Technology. In my proposal, I outlined how using the clicker system can help students increase their performance on CSAP, as well as providing teachers with a new technology that they can use to assess student performance. On May 3, 2004 I was notified that my proposal was approved, and my request for \$2,495 could be used to purchase a CPS system for our school. To date, we are the only elementary school in Cherry Creek Schools to have this equipment. Currently, several middle schools and high schools in CCSD are using CPS.

This hardware and software combination features the ability to ask students questions and immediately collect and analyze their answers. CPS uses student keypads that look like small remote controls. Results of each question are displayed after all answers have been entered. This helps students learn in their own way - interactively. It also is a motivation tool that allows all students to participate without concern over answering a question incorrectly. Research has shown that the system does improve student performance and test scores.

Since we are the first elementary school to have access to this technology, it is my goal to assist teachers to begin using CPS effectively. When I was hired in 2003, my job title was Technology Specialist and SAS. In my role as Technology Specialist, I work closely with our school Media Specialist to develop units and lessons related to Media/Technology. Students come to Media/Tech specials on a rotating basis for six days at a time. This way we see all students in grades K-5 continually throughout the year. My role as SAS (Student Achievement Specialist) is to increase student achievement through professional development and training of teachers. I spend 75% of my time working with students and 25% assisting teachers with technology.

Problem

The CPS system allows users to answer multiple-choice questions interactively. Typically, multiple-choice questions are used to assess knowledge and comprehension of curriculum. These are low-level thinking skills, according to Bloom's Taxonomy. If teachers see CPS as simply a replacement for multiple-choice tests, there will be little justification for using the system over paper and pencil assessments. However, if I can show teachers how to use CPS as a way to spark discussion and assess higher level thinking skills, such as analysis, evaluation, and synthesis, then teachers will be more likely to use CPS to its full potential.

In order to solve this problem, I developed a presentation to introduce teachers to CPS. The presentation combined PowerPoint with CPS activities that ask probing questions to teachers. Instead of showing teachers the 'nuts and bolts' of creating classes and lessons with CPS, I focused on using CPS to demonstrate how to ask questions that spark discussion, assess attitudes, and require higher level thinking skills.

I also created a supporting website that delves into more details about asking good questions. The site is designed to provide background information and resources to begin using CPS or an online survey as an assessment tool. If schools do not own a CPS system, teachers can use SurveyMonkey.com, which is a free resource available online.

Rationale

The PowerPoint presentation will introduce teachers to the following topics:

- What is assessment?
- Types of assessment
- Assessment OF learning vs. assessment FOR learning
- Summative vs. formative evaluation
- Types of questions to ask (Likert scales, Bloom's Taxonomy)
- Generating reports with CPS

CPS activities will be conducted during the presentation to help teachers become familiar with using the clickers, as well as providing examples of each topic covered in the PowerPoint presentation.

The objective of my presentation is to demonstrate how CPS can be used for much more than a review of material. It can help teachers initiate discussion among students, determine background knowledge, and assess attitudes. CPS can also be used to ask questions that align with state standards. The following table shows each question that I will ask, along with a brief explanation that describes my rationale:

Objective	Assessment Question w/CPS
Introductory activity	Which term best describes your job duties at Sagebrush? A. K-2 teacher B. 3-5 teacher C. Special ed teacher D. Specialist E. Other
<i>The first CPS activity is meant to familiarize the audience with using the clickers, entering responses, and seeing how these responses are shown onscreen.</i>	
Determine background knowledge	How familiar are you with using the Classroom Performance System (a.k.a. 'the clickers')? A. I have used it before B. I have heard of it, but have not used it C. I have never heard of CPS before today
<i>This question is meant to assess the familiarity with the CPS system. It also serves as an example of asking a question to determine background knowledge of the audience.</i>	
Definition of assessment	In your opinion, which statement best describes the term 'assessment'? A. Assessment provides statistical data about students B. Assessment is used to determine if student learning has taken place C. Assessment is used to provide teachers feedback for future lessons D. Assessment is best done by experts through standardized tests
<i>This opinion-based question serves to gauge attitudes towards assessment. The results will indicate teachers' readiness to use CPS as an assessment tool. If most responses are A or D, then I can show how CPS can provide ongoing assessment about students. Answers B or C indicate that teachers view assessment as a way to improve instruction.</i>	
Attitude assessment	Please rate your feelings about the following statement: <i>"The recent emphasis on assessment is a distraction from what's really important in education."</i> A. Strongly agree B. Somewhat agree C. Somewhat disagree D. Strongly disagree

This is an example of a Likert scale question. It is meant to determine teacher attitudes and opinions about assessment. It also provides an example of the importance of asking valid questions. By including or omitting the word 'becoming,' teachers may respond differently. The term 'accountability' could have replaced 'assessment' and the responses may change, too.

Types of assessment	<p>Which of the following activities would you consider to be the best assessment of student learning?</p> <ul style="list-style-type: none"> A. Written test with multiple choice and true/false questions B. Written test featuring short answer and essay questions C. Teacher assigns a project to complete, featuring specific tasks (create a report, brochure, poster, diorama, etc.) D. Student chooses from a list of projects, each with its own set of tasks (create a song, play, slide show, etc.)
<p><i>By including a variety of assessment examples, I hope to demonstrate how CPS can assess more than low-level thinking skills. The question is meant to spark a discussion about the types of assessment activities to use with students. Although a majority of responses might be D, I would be interested to see how many teachers actually give students choices when assessing their learning.</i></p>	
Assessment FOR learning vs. assessment OF learning	<p>For the next 5 questions, please choose whether the following activities are examples of assessment FOR learning or assessment OF learning</p> <ul style="list-style-type: none"> A. A grade on a finished product B. A pretest given for a new math concept C. Feedback written on an assignment so the learner knows what areas to improve D. A student participation checklist E. A pop quiz that counts to make sure learners are staying on top of their reading
<p><i>The next five questions are meant to assess whether teachers can understand the differences between assessment FOR learning vs. assessment OF learning. These examples were taken from Les Scrogan's presentation to our IT5990 class on June 8.</i></p>	

Higher level thinking through graphic analysis

What is the message of this cartoon?



- A. George Bush is a good leader
- B. George Bush is a bad leader

By providing only two responses to this question, teachers can assess how students interpret political cartoons. The simplicity of the responses also demonstrates how something that appears to be an ordinary cartoon can have multiple meanings, depending on the political views of the respondent.

Higher level thinking questions through graphic analysis

What is the message of this cartoon?



- A. Kids don't need to read books anymore
- B. Technology has replaced books
- C. Nothing can replace reading a book
- D. What if technology could talk?

This political cartoon is meant to show how students analyze an image. Literal thinkers would answer E, while higher level thinkers would respond C. This could be used to discuss how to evaluate and analyze an image, both of which are higher level thinking skills according to Bloom's Taxonomy.

Summative Evaluation	Based on today's presentation, how likely are you to use the CPS system with students this year? A. Very likely B. Somewhat likely C. Somewhat unlikely D. Very unlikely
<i>This question is meant to provide a summative evaluation of my presentation. If less than 3 people choose A, then I will need to re-evaluate the effectiveness of my presentation.</i>	
Summative Evaluation	Which statement best describes your attitude towards the CPS system? A. I will definitely use CPS with my students this year. Train me NOW so I can use it right away! B. I will use the CPS system after someone else on my team uses it first. I will attend training sessions to learn how to use it. C. I might use the CPS system this year. I probably will not attend training sessions to learn how to use it. D. I will not use CPS system this year. I will not attend any training sessions to learn how to use it.
<i>I hope to begin training 3-5 teachers to use CPS within the first few months of school. This final question will determine who is interested in further professional development to use CPS.</i>	

These CPS activities are meant to demonstrate the variety of questions that can be asked with CPS. The goal is to initiate discussion, determine teacher attitudes towards assessment, and to show how easily results can be recorded and scored through the CPS system. Further discussions will include how to ask a good question, and how to use CPS's feature of aligning questions with state standards.

Next steps include scheduling professional development for those teachers willing to use CPS with their students. During the Spring of 2004, I conducted an Action Research project as part of my ILT coursework. The purpose of my study was to determine whether one-on-one coaching is an effective model for training teachers. My findings showed that this model is quite effective for teachers, since they receive individual training, and we can work on projects that relate directly to their instruction. I plan to use on-on-one coaching to help interested teachers learn how to use the CPS system. Individual

training includes the following components:

1. Visit the website [Asking Good Questions](#) and complete the activities relating to assessments and questioning techniques
2. Create a class and enter student information with CPS software
3. Create a lesson and enter questions
4. Set up the CPS hardware for classroom use
5. Management of the clickers
6. Ask a question and show the results

Initially, I will model these activities in the classroom. Teachers would observe first, and then take over to ask other questions with CPS. We would then debrief on what went well, what areas could use improvement, and further training needs using the CPS system.

It is my goal to have at least one teacher in each grade 3-5 using CPS this year. After these three teachers have been successfully trained through one-on-one coaching, they would then begin showing their teammates how to use CPS.

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