Power Point as a Motivating Instructional Mode
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Abstract
As I became acquainted with Microsoft Power Point's capabilities for animation and sound coordination, I realized the potential for creating dynamic instructional presentations that would capture students' attention, motivating them to increase their effort and participation.

In addition to getting students' attention, instructional presentations that incorporate colorful, moving objects and sound effects allow students to encode curriculum in dual visual and audio schemas. This will increase conceptual understanding, retention, and overall achievement.

The goal of my project was to develop and evaluate Power Point presentations as an instructional mode in the Algebra classroom. My paper discusses my procedure of learning to use Power Point effectively, defining criteria for successful presentations, creating shows, and testing them for emotional and cognitive reaction from my students. I have included samples of my presentations, ranging from demonstrations that are short and primitive in style to lengthy shows that have some animation and sound effects.

The results were extremely positive from a motivational standpoint and moderately effective in the cognitive domain. The use of Power Point has greatly invigorated the learning environment and has been a lot of fun both for me and for my students. I plan to continue creating, testing, and modifying Power Point slide shows as an instructional mode.

Introduction
I was reminded of the importance of motivation as a factor for achievement last May 1998, shortly after Graphing Calculators were mandated by the state of Virginia for use of by all Algebra I students. The students quickly learned how to download games onto the calculators, to many teachers' chagrin. I felt it myself one day when I was confronted with a low achieving student who was using class time to program his calculator to play games.

Instead of downloading a game program, the young man was manually typing in the long program code from a series of loose pages upon which it was neatly handwritten. The code was a seemingly endless sequence of tiny letters and symbols. What a tedious task, I thought.

Undaunted, the boy had carefully entered most of the code already, and he proudly scrolled up to display the dizzying array of meaningless symbols. Ensuring the accuracy of his typing had already taken a lot of time and attention to detail, he admitted. He double-checked his work after each line. It would be worth it, he said, to have the game. He was excited-just a few hundred characters left to type!
I felt the irony, as I looked at this child, who never even bothered to acknowledge a negative sign in an equation, let alone devote half the time, effort, or enthusiasm for which he was performing this painstaking task to his school work. The second irony hit that the lesson here was mine: motivation is the key. I needed to create some of it for Algebra in my classroom.

At the beginning of the 1998 school year I began to experiment with Microsoft Power Point, a software application for creating slide show presentations (see Appendix A for description). As I became acquainted with its capabilities for animation and sound coordination, I realized the potential for creating dynamic instructional presentations that would capture students' attention, motivating them to increase their effort and, therefore, their achievement. The result of this inspiration was the design of this project.

Project Goal
To develop and evaluate Power Point presentations as an instructional mode in the Algebra classroom.

Thesis
If a student is motivated to actively engage in meaningful learning activities—ones that intertwine conceptual understanding with solid, algorithmic skills—the student can process the information on higher cognitive levels and increase achievement. Power Point is an instructional mode that can meet the dual challenge of motivating students and providing a conceptual schema.

Using instructional presentations that incorporate colorful, moving objects and sound effects, I capture students' attention, motivate them to learn, and stimulate them to encode curriculum in dual visual and audio schemas. This will increase conceptual understanding, retention, and overall achievement.

The cognitive stage of the learners, ninth-grade students, is one at which concrete thinking is still primary and learners internalize knowledge through forming mental schemas from visual images of tangible objects, as well as hands-on activities (Piaget, 1971). The use of concrete objects also facilitates life connection. Bright colors will stimulate mental activity and animation of objects to show proper mathematical relationships will enable students to visualize structure and change. A thoughtfully designed show will promote conceptual understanding because learners create mental schemas to encode concepts into knowledge and comprehension. This would increase the potential to ascend to the more formal reasoning of application, analysis, synthesis, and evaluation (Bloom, 1956-Appendix B).

Students' enjoyment of Power Point will produce motivation, and as a result, effort. As achievement and motivation increase, the tone of the class will become one of enthusiasm and desire to excel.
Activities

1. Throughout the course of the semester, I explored, learned, and refined my ability to use both the basic and advanced features of Microsoft Power Point.

2. I defined a "successful Power Point presentation" as one that would increase student motivation, measured subjectively by classroom feeling tone, and therefore achievement, measured objectively but unscientifically through grade improvement.

3. I selected criteria for the components of a successful presentation, based on personal experiences as teacher and learner. The initial criteria consisted of the use of:
   a) visual images of concrete objects
   b) a variety of images: background design, objects, pictures, and text.
   c) bold, bright, contrasting colors for images
   d) animation of images

4. I designed Power Point slide shows that met my criteria to present various Algebra curriculum concepts (see Appendix C and Floppy Disk).

5. I used my Power Point presentations in class and studied student reaction and performance (see Appendix D).

6. I modified certain aspects of some of my presentations and inserted sound effects, based on my reflections about the results with students, further study of published research, and on a now more sophisticated knowledge of Power Point. I expanded my criteria for a successful Power Point presentation to include:
   e) Sound Effects to accompany object animation. Students receiving information through dual sensory modes will form a stronger cognitive schema.

7. I compiled a quick-start reference sheet for a new user to follow to learn skills and strategies for creating an appealing slide show

Reflections and Implications for the Future

My goal for motivation was met through this experience, as measured by student response: Students are definitely enthusiastic about the shows and are more likely to be attentive for the rest of the class period. In the affective domain, students responded to the "fun" of the shows and the feeling tone of the class lightened considerably over the period of four months that I started using presentations on a semi-regular basis.
My goal for conceptual development is one that I still need to work further toward. Test and quiz results did climb slightly in three out of my five classes, the three that I used Power Point more frequently than the other two. I was targeting the Algebra curriculum in the creation of my Power Point presentations. The other two classes had Geometry curriculum, and I didn't use many shows in those classes. The score increase could also be attributed to factors regarding the difference in curriculum.

But some of my shows need to be modified again for more conceptual clarity. While the students enjoyed the Function Box Power Point, I think that there were too many concepts thrown into just a brief amount of time. For the amount of time I spent creating it, I was disappointed that subsequent evaluation of student mastery of Functions did not reflect a better understanding of the topic than the previous year before I used Power Point.

The presentations took a long time to create. This was due to the following facts: I was just learning Power Point as I went along; I revised shows until they met my criteria for successful presentations; I revised shows again when I realized how tuned in students are to animation and sound effects.

My long-term goal is to create a series of lesson plans that incorporated Power Point presentations. My emphasis shifted to testing for student reaction for a variety of topics to see which would be most useful for teaching.

The best topics to teach via Power Point are ones that require visualization. Graphing equations was the most successful show, measured by student improvement on quizzes and application activities. The accuracy of computer graphics for graphing is unparalleled by free-style (hand-drawn) graphing, and the color scheme facilitates analyzing the many parts of the graph. Another good topic for Power Point is equations. Solving equations requires a visual organization as terms of the equation rearrange and combine to condense long expressions into the final, compact answer.