“Teaching Problem Solving Through Computer Simulations”

Review 4 : Conference

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SED 600 / Dr. Rivas
After attending the CUE (Computer-Using Educators) Conference in Palm Spring in March, technology interested me so much more. One of the sessions I attended was entitled “Engaging Brains with Games and Stimulations”. Dr. Bernie Dodge of San Diego State University presented the session. He presented on several ways games and simulations can be integrated in the classroom. He emphasized the learning power of games and simulations. He created his own equation that displayed the value of “learning power” (Power = Attention X Depth x Efficiency). Majority of his presentation was about specific examples that can be used in the classroom. This presentation made me think of the effectiveness of these games in the classroom.

Woodward, Carnie and Gersten (1988) conducted a study with 30 special education students. The students were divided into two groups, structured teaching versus combination teaching. Every student received the same structured teaching in a large group setting of about 12-15 students. Halfway through the lesson, the students were divided up by their groups; one half of the group played the simulation game called “Health ways”, while the other received application or review activities. A certificated special education teacher and a researcher taught the class. This idea was supposed to help with the control of the groups to make sure that the all groups were receiving the same treatment and instruction. The study happened for 12 days straight, with an analysis of pre and post-tests, and a test given days after the last simulation. The study found that simulations were effective in teaching the health concepts. They were great reinforcements that not only taught the students the concepts, but also improved their problem solving skills. The students in the combination group scored significantly better than their counterparts who only received the structured teaching. Woodward, Carnie and Gersten (1988)
found that “the use of computer simulations can effectively complement traditional instructions” (82).

The set up of the study was impressive. Giving both groups the structured instruction and then implementing simulations to one group and more structured activities to another shows a better comparison of the effectiveness of the computer simulations. The study mentioned how previous study did not look at the combination of strategies, but only observed the strategies independent of each other (Woodward, Carnie and Gersten, 1988). This study improved on how the simulation was implemented in the lesson. Teachers had a chance to model and guide the students through several simulations. Then, students were given time to independently manage through the simulations. In previous studies, students had very limited time with the simulations, or students did not understand the simulation. This study was impressive because it was able to take a lot of previous study and modify it so that the results can be analyzed better.

The program itself was a good asset to the study. The researchers found a remarkable program that was very useful to the specific classroom. Teachers had a chance to fully learn the program so that the students can manage it well. The unfortunate reality of this in our everyday classroom maybe the lack of time the teacher has to implement these kinds of programs, or even finding the time to review programs that can be helpful in the classroom.

At the conference, Dr. Dodge kept repeating the importance of having a program that keeps the students attention, the depth of the content, and how efficient the program is to teaching and reinforcing the content. One of the things that made this study successful was how well the program fit in the criteria.

The students were observed in a 12-day period. It would be interesting to see the longer effects of more simulations in the class. The results of the study could be unique to the
simulation causing a very bias result. Would the students be more successful if they are more familiar with the simulations? What happens if the groups used a different program?

If I had the resources, I would use simulations in the classroom. Students need this type of application in order to understand the content, but also display higher level of thinking. Even the study proved that it was just not the content that was so important, but it was the students’ abilities to solve problems. Especially in the science classroom where simulations can help reinforce concepts, some students need the visual to understand. I am always seeking ways to have my students critically think through questions and problems. If simulations like these aid this process then I would like to implement it in my classroom. Unfortunately, as I stated earlier, I would need to see how effective these programs are, pay the cost (if they are not free), and then have reliable computers in the classroom.

Out of all the reviews, this has been the most worthwhile because it was a meaningful exercise to explore the conference I attended a little further and connect it to actual research that has been done in this field.