

Simulation Games, Learning, and Retention

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Educators are always looking for better ways of fostering the development of young children. New methods, new materials, new subjects, and new goals are constantly being tried. Among the most promising innovations are simulation games. In simulation games, participants try to attain specific goals by interacting in an artificially produced environment that recreates some aspect of social reality. To make the simulated environment as realistic as possible, players assume the roles of individuals or groups in the social system being simulated.

Simulation games can be successfully incorporated into most curricula. Bruner (1) has described the academic value of simulation:

The most persistent problem in social studies is to rescue the phenomena of social life from familiarity without at the same time making it all seem "primitive" and bizarre. Four techniques are proving particularly useful in achieving this end. The first is contrast; the second is the simulation and use of informed guessing, hypothesis making, conjectural procedures. The third is participation—particularly by the use of games that incorporate the formal properties of the phenomena for which the game is an analogue. In this sense, a game is like a mathematical model; an artificial but often powerful representation of reality. The fourth is the ancient approach of stimulating self-consciousness . . .

Games go a long way toward getting children involved in understanding language, social organization, and the rest; they also introduce . . . the idea of a theory of these phenomena. We do not know to what extent these games will be successful but we shall give them a careful try. They provide a superb means of getting children

to participate actively in the process of learning—as players rather than spectators [1: 92–93, 95].

Educational simulations are still in their infancy, and consistent evidence of their effectiveness has yet to be developed. Indeed, because they lack strict objectives, games are not easily evaluated by traditional techniques. Several studies have been done to determine the effectiveness of simulation games.

Paul DeKock (2) reported a study of racial attitudes using the game *Sunshine*, a simulation of current racial problems. In this game, high-school students in his American Studies classes took roles typically found in a community. The teacher introduced pressure cards designed to initiate tension and move the community toward racial crisis. DeKock found that attitudes changed significantly as a result of the simulation experiment. The results must be viewed with caution, however, because the designer of the game taught all the classes.

In a similar study, Karen Cohen (3) found that junior high school students who played *Consumer and Democracy* as part of a special summer-school program for unmotivated pupils overwhelmingly preferred the games to traditional classwork. Participants explained why they liked simulation: 87 percent thought the games were more interesting than traditional methods; 82 per cent thought the games allowed pupils more freedom to work on their own; and 61 per cent thought the games gave a better idea of pupils' progress.

Wing (4) compared two groups of sixth-graders. One group played *Sumerian Game* and *Sierra Leone* individually at computer terminals. The control group studied the subject matter of the games by traditional classroom methods. The experimental group outperformed the control group on the criterion test for the *Sumerian Game*, while the control group out-

performed the experimental group on the criterion test for *Sierra Leone*.

Little research has been done on simulation games, especially in the elementary school, and only a few studies have focused on retention. Many of the benefits attributed to simulation as a learning device are not convincingly supported by the available evidence. The problems of doing conclusive, scientific research on simulations are many: the lack of a theoretical framework, the influence of the teacher or the director in setting the tone, the question of whether outsiders should evaluate the effectiveness of the simulation game and their possible influence on the activity, the environment and the type of pupils who engage in the games, the difficulty of getting accurate and valid instruments to measure short-term and long-term changes in attitude, the consideration of the Hawthorne effect, and the immense problem of generalizing about simulation games from one particular game. All these problems have produced conflicting data that have softened the stand held by previously enthusiastic supporters who insisted that simulation games could do almost anything better than more traditional methods.

In a recent review Coleman, Livingston, Fennessey, Edwards, and Kidder (5) explain that simulations and other types of experiential learning processes are not always effective in helping participants generalize from the particular experiences provided in the game to a general principle applicable in other circumstances. These authors argue: "It is probably because [generalizing] is the weakest link in experiential learning that post-game discussions appear to be very important in the experiential learning that takes place in simulation games" (5: 5). Coleman and his associates conclude that learning in school might be made considerably more effective by "the appropriate mix of experiential and information-processing modes of learning" (5: 6). Indeed, simulations that