

## Chapter XXVII

# Game-Based Learning in Design History

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### ABSTRACT

*Games are increasingly being used to teach content in a variety of courses from elementary to graduate education. This study investigates the effectiveness of using a game, to learning design history content, and it examines students' preferred learning activities based on learning styles. Forty-two students played a computer game and then responded to a 10-item quiz. Learning style or times played did not impact achievement on the quiz. Students did prefer games as a learning tool, but equally preferred lecture and projects. This study does indicate that games can be used as tools to teach various types of information within a college course. Games added variety to the design history course and made learning facts more fun. The concrete nature of the game was appropriate for this particular group of students, most of whom had concrete learning styles. Finally, the recycling of a previously designed learning object made the project affordable in terms of time and money.*

### INTRODUCTION

Games are not just for fun—they can be powerful learning tools and are one of the fastest growing areas of digital design. Games are available for all age groups and with differing levels of complexity. From die-hard gamers to precocious

two-year-olds, the game environment provides an opportunity to interact and respond to challenges and opportunities. Different computer games appeal to different people. This appeal may be based in content, activity, or personal affinity for game playing. We know that people have preferred learning styles, but we know very little about the

relationship of learning style to learning within a game context. The Game On Conference (2002) hosted by Learning and Teaching in Scotland emphasized the growing trend of using computer games for learning and identified a need for research concerning learning styles and educational games. This project focuses on integrating the game concept into class content and examines the interaction between students' learning styles with computer game content delivery.

## **OBJECTIVES AND RESEARCH QUESTIONS**

The objective of this research is to determine if games can be used in the college classroom and to examine the relationship of learning style to achievement when a game-based learning object has been used as part of a design history course. Our research questions are:

1. Will students remember content presented in the game?
2. Do students with a certain learning style tend to do better on a quiz that includes content from the game?
3. Do students indicate a preference for the game (as measured by a survey) based on learning style?

This project is purposefully limited to a basic learning activity—acquiring knowledge of facts. Future studies could study the interaction of learning style with higher-thinking skills. Our hunch is that students with concrete learning styles will have a greater affinity for this learning game as it emphasizes concrete knowledge.

## **SIGNIFICANCE**

The findings of this study will help to inform both educators and educational technology developers.

If the results indicate that students with a certain learning style did score higher on a quiz by using the game component, we could complete further research to see how to adapt the game for other learning styles. Variations of a game could be developed that would appeal to different learning styles, and users can select the variation that best suits their learning style. Conversely, we could develop games that take people out of their comfort zone in terms of learning style, and the notion of doing this within a game context may be more appealing and fun.

One of the biggest challenges is finding the time and money to construct an educational game. We decided to make use of an existing game, developed for another purpose by one of the authors, and recycle the basic programming for this project. This fits with the notion of the learning object. "Learning objects are small, reusable chunks of instructional materials that can be included on course Web sites or with other digital instructional materials. Sometimes they have no implicit instructional objective—they are shell programs in which instructors can insert their own content (such as a quiz game shell in which instructors insert their own questions), or media elements that can be aggregated and used with other digital instructional materials (such as a photograph or video clip). Sometimes they do have specific instructional objectives but can be adapted to different learning contexts" (University of Minnesota Digital Media Center, n.d.).

## **RELATED LITERATURE**

Games are increasingly being used in educational technology. Salen and Zimmerman (2002) define game as:

*A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome. The key elements of this definition are the fact that a game is a sys-*

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