

Chapter 7

Promoting Civic Thinking through Epistemic Game Play

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ABSTRACT

A growing body of research suggests that computer games can help players learn to integrate knowledge and skills with values in complex domains of real-world problem solving (P. C. Adams, 1998; Barab et al., 2001; Gee, 2003; Shaffer et al., 2005; Starr, 1994). In particular, research suggests that epistemic games—games where players think and act like real world professionals—can link knowledge, skills, and values into professional ways of thinking (Shaffer, 2006). Here, we look at how a ten hour version of the epistemic game Urban Science developed civic thinking in young people as they learned about urban ecology by role-playing as urban planners redesigning a city. Specifically, we ask whether and how overcoming authentic obstacles from the profession of urban planning in the virtual world of a role playing game can link civic values with the knowledge and skills young people need to solve complex social and ecological problems. Our results from coded pre- and post-interviews show that players learned to think of cities as complex systems, learned about skills that planners use to enact change in these systems, and perhaps most important, learned the value of serving the public in that process. Two aspects of the game, tool-as-obstacle and stakeholders-as-obstacle, contributed to the development of players' civic thinking. Thus, our results suggest that games like Urban Science may help young people—and thus help all of us—identify and address the many civic, economic, and environmental challenges in an increasingly complex, and increasingly urban, world.

INTRODUCTION

I personally believe...that U.S. Americans are unable to do so because...uh, some... people, out there in our nation, don't have maps.

—2007 Miss Teen South Carolina, when asked why a fifth of Americans cannot find the United States on a world map.

DOI: 10.4018/978-1-60960-565-0.ch007

Today, half of the world's population—some 3.3 billion people—live in cities. By 2030, the urban population will exceed 5 billion. (United Nations Population Fund, 2007, p. 1) As the United Nations Population Fund suggests, “their future, the future of cities in developing countries, the future of humanity itself, all depend very much on decisions made now in preparation for this growth.” Thus, understanding and engaging with the complex interrelationships of cities is a fundamental form of citizenship in the 21st Century.

Unfortunately, as a geographic literacy study suggests, “young people in the United States...are unprepared for an increasingly global future...Far too many lack even the most basic skills for... understanding the relationships among people and places that provide critical context for world events” (The National Geographic Education Foundation, 2006, p. 7). One-fifth of Americans cannot even locate the United States on a world map—a statistic that led a Miss Teen USA contestant to suggest that geographic illiteracy is so pervasive because “U.S. Americans... don't have maps.” (R. Adams, 2007)

But the problem is not that U.S. Americans lack maps. Nor is it even that young people cannot locate the United States on a world map, depressing though that may be. Rather, the problem is that our public understanding of what it means to be geographically literate equates geographic thinking with the ability to locate places on a map. Questions like this focus solely on *knowledge*: bits of information disconnected from any meaningful context.

Of course civic thinking does require knowledge of social, economic, and ecological—and, yes, geographic—information. But as Ehrlich (2000) argues, civic thinking means more than just recall of isolated facts. Solving civic problems requires putting knowledge in the context of real world skills and in the service of civic values that create a democratic republic (2000). Developing civic thinking requires learning opportunities

where the use of knowledge and skills are guided by civic, social, and ecological values.

A growing body of research suggests that computer games can help players learn to integrate knowledge and skills with values in complex domains of real-world problem solving (P. C. Adams, 1998; Barab et al., 2001; Gee, 2003; Shaffer et al., 2005; Starr, 1994). In particular, research suggests that *epistemic games*—games where players think and act like real world professionals—can link knowledge, skills, and values into professional ways of thinking (Shaffer, 2006). To establish these links, epistemic games present players with the same meaningful obstacles that professionals-in-training face and give players a chance to reflect on those obstacles with more experienced mentors.

Here, we look at how the epistemic game Urban Science develops civic thinking in young people as they learn about urban ecology by role-playing as urban planners redesigning a city. Specifically, we ask whether and how overcoming authentic obstacles from the profession of urban planning in the virtual world of a role playing game can link civic values with the knowledge and skills young people need to solve complex social and ecological problems—and thus be a powerful context for learning civic thinking.

THEORY

Ehrlich (2000) argues that civic education has two distinct, but related, parts: civic engagement and civic thinking. For Ehrlich, *civic engagement* consists of “individual and collective actions designed to identify and address issues of public concern” (2000, p. xxvi). Activities that impact and strengthen the community—such as volunteering at a soup kitchen or picking up trash on Earth Day—are important components of civic education. But, according to Ehrlich, the *civic thinking* that develops from such activities is what creates a long-term commitment to civic

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