Gender, Gaming, and IT Careers

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INTRODUCTION

Computer Games to Keep Women in the Pipeline?

Many IT researchers have noted the disturbing trend of an *incredible shrinking pipeline*; this pipeline represents the number of women who are involved in computer and technology fields from high school continuing onto graduate school or professional careers (Camp, 1997; Gorriz & Medina, 2000). A closely related phenomenon is how girls' interest in computer and video games tends to dwindle during childhood. Researchers feel that computer games have provided "a significant impetus for many boys to become more acquainted with computers … [for] young people who play games are more likely to enter computer-related careers" (Agosto, 2004, pp. 11-12). It seems reasonable, then, that computer and video games provide an easy lead-in to computer familiarity, comfort and literacy (Cassell & Jenkins, 2000).

Preschool children of both sexes demonstrate equal interest in computer games, but as girls mature, they lose interest in gaming (Agosto, 2004; Comber, Colley, Hargreaves, & Dorn, 1997). The reasons for this are uncertain. Perhaps it is partly because of the way women are often under represented in games—only 16% of the characters in the bestselling games are female—or when they are represented, the characters are portrayed unrealistically or negatively (Douglas, Dragiewicz, Manzano & McMullin, 2002). Female game characters are frequently depicted as damsels in distress, scantily clad, objectified rewards to be won, or passive bystanders (Provenzo, 1991; Douglas et al., 2002). Cassell and Jenkins (2000, p. 6)) see this portrayal as a "prime example of the social construction of gender."

Another reason may be the lack of enough compelling and attractive content tailored to young girls (Gorriz et al., 2000). Perhaps it is not that girls innately dislike video games, but there are simply too few titles to choose from. Statistics show that women actually do enjoy video games – in fact, 43% of all gamers today are women, but most of these women are over the age of 18 (Entertainment Software Association, 2005). When women do play games, they tend to play online games and social games such as Electronic Arts' *Sims Online*. While a game like *Sims Online* is gender neutral, it is noteworthy that more women (56%) actually play this game than men. Evidently, when content is made available that is attractive or fun to women, they will play. It is, therefore, worthwhile to consider what kinds of games can be leveraged for education to promote computer literacy in girls and to attract more girls to technology in general.

BACKGROUND

Social Massively Multiplayer Online Games (MMOGs) as Teaching Tools

Numerous studies have shown that women prefer games that allow for collaboration (rather than competition), complex social interaction and relationships between characters (Gorriz et al., 2000). MMOGs are immersive, three-dimensional (3D)

virtual environments (or *virtual worlds*) rich in collaboration and fascinating social interactions between thousands of real people within the worlds (Woodcock, 2005). MMOGs have exploded in popularity in recent years, with more than 5 million players, appealing to both males and females alike. Even popular quest-oriented MMOGs, such as *World of Warcraft* and *EverQuest 2,* which incorporate traditionally male-preferred features such as combat and fighting, still attract a large number of female players due to their in-game social elements.

Of particular interest to us is Makena Technologies' social MMOG entitled *There*, a virtual world similar to *Sims Online* and Linden Labs' *Second Life*. These are not like traditional games with a predefined goal and victory/failure end state. For instance, there is no way to win, lose or die in these worlds; the primary focus is the community and social interactions between the thousands of real people wandering around the world. Players create their own digital avatars, or digital representations of themselves with customizable clothing, hairstyles, facial and body features, and so forth. Characters simply have fun and mingle in various scenic locations; purchase clothing, vehicles or other objects; and interact with digital representations of themselves.

Boys and girls' interest in these virtual worlds can be leveraged for education. In recent years, the pedagogical value of computer and video games has begun to be recognized. Prensky (2003) argues that an engaged, motivated learner cannot be stopped, and that valuable skills such as ill-defined problem solving, learning by doing and other leadership skills can be learned in games that cannot be learned elsewhere. For example, *America's Army: Operations,* a training simulation game, has been very successful in recruiting people into the armed forces (Zyda, Mayberry, Wardynski, Shilling, & Davis, 2003). MMOGs, therefore, seem useful as both a vehicle for delivering educational content and also for promoting computer literacy among both young girls and boys in a fun, active manner.

We set out to determine how effective MMOGs would be in a high school classroom setting in exploring gender and diversity issues related to technology. It made sense to explore these issues due to the experiential, immersive nature of these virtual worlds that enable students to take on the form of someone completely different than them. In particular, we were interested in (1) what can digital experiences within virtual worlds teach high school students about gender issues, stereotypes, diversity and IT; (2) what high school students believe about gender and IT; and (3) why women tend not to play video games or pursue careers in IT.

USING VIRTUAL WORLDS TO EXPLORE GENDER AND IT

To probe these issues, we developed and taught a 5-week course, *ITP Quest: An Exploration of Virtual Worlds and Culture,* as part of a full-scholarship, residential summer-enrichment program that gives the most gifted and talented high school students across the state of Pennsylvania a comprehensive experience in the information sciences and technology. Fifty students were chosen from a large pool of applicants, and our class consisted of 14 students (11 males and 3 females).

The acronym ITP in *ITP Quest* stands for the basic principles *information*, *technology*, and *people*. We emphasized the importance of considering the social factors involved with information technology (IT), including how people interact with information and technology, respectively, and how people are different in various dimensions, which can often lead to differences in technology use or needs. To help the students understand this, the course featured various activities to help students learn about different aspects of diversity (e.g., gender, ethnicity, age, socio-economic status, military experience, etc.), the different ways people use technology and how technology can be used to support communication and learning across cultures. Perhaps most significant of these activities were the interactions within virtual worlds; students were instructed to interact within these digital worlds and to meet all kinds of players from around the world in order to study the integration of information, technology and different kinds of people.

Novel learning was afforded because virtual worlds enabled the students to experience life in the shoes of someone different from them. For example, by designing an avatar to be the opposite gender, the students got to experience a very different set of social interactions and treatment as they embodied

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