

Locate and synthesize at least two research articles that focus on gender or ethnicity in software design. Your selected articles should be scholarly in nature, from published journals if possible (no simple web pages from Google searches!). Share and compare your findings with others on the discussion board forum, "Assignment 5.1: Gender and Ethnicity in Software Design"

The first peer-reviewed article I found on gender and educational software is titled *Gender Stereotypes in Educational Software for Young Children* written by Jane P. Sheldon and published in *Sex Roles* in October of 2004. The author's motivation for writing the article was in response to the International Society for Technology in Education's (ISTE) draft of technology standards for teachers in 2002 which stated that "teachers should empower all students and support diversity" (Sheldon, 2004). However, Sheldon's content analysis of educational software for preschoolers found that there were significantly more male characters than female characters, thereby making it tougher for teachers to be afforded the ability to teach gender diversity. Sheldon's article also goes on to state that of the software reviewed that male characters were more likely than female characters to exhibit masculine-stereotypical traits and that female characters were more likely than male characters to exhibit counterstereotypical behaviors, yet were more gender stereotyped in behavior. Sheldon also wrote that prior to her study there were only three other research documents written on the topic of gender stereotyping in educational software, Chappel in 1996, Milburn, Carney and Ramirez in 2001, and Dress and Phye in 2001. Based on Sheldon's analysis of 48 current educational software packages located on DiscoverySchool.com geared towards children 3 to 6 years of age, she found that these educational tools contained 73 lead male characters compared to only 35 female leads, and 183 male secondary characters compared to only 147 that were female. All told this means that there were only 182 female characters total (42%) compared to 256 male characters total (58%). Although this article does bring the gender gap in educational software to light, I wish the author had had some figures from a decade or two ago in order for us to compare her results with previous statistics. This way we could see if the percentage of female characters is on the rise compared to previous educational software packages or not. My guess is that there has been an increase, that developers are aware of the disparity, and are attempting to close the gap.

My second article titled *Students' Choice of Animated Pedagogical Agents in Science Learning: A Test of the Similarity-attraction Hypothesis on Gender and Ethnicity* was co-authored by Roxana Moreno and Terri Flowerday and was published in *Contemporary Educational Psychology* in 2005. This was quite a lengthy and complex article to digest, so in order to succinctly summate the article I will quote from the abstract.

"College students learned about science with a multimedia program. One group (choice or C) chose to learn with or without an animated pedagogical agent (APA) representing a male or female of five different ethnicities. Another group (no-choice or NC) was assigned an APA by the system. All participants in C group chose to learn with APAs and students of color chose significantly more same-ethnicity APAs than White American students. A significant interaction between choice and ethnic similarity factors revealed that group C produced lower retention, transfer, and program ratings when learning with same-ethnicity rather than different-ethnicity APAs. Results support an interference hypothesis for students who choose to learn with same-ethnicity APAs."

Before reading the article I would have assumed the opposite to be true. Especially after all the reading I've done on instructional design which emphasizes a need for cultural sensitivity or cultural neutrality. Based on the findings of this study it appears a) giving students' choice of gender or ethnicity in an APA can be problematic, and b) selecting an APA of the same gender and ethnicity can result in the "interference hypothesis". The authors theorize that the results of reduced learning occurring when an APA of the same gender and ethnicity is selected may be due to the fact that the student is focusing more on how the APA is representing the student than the material being taught thereby creating a case of cognitive distraction a.k.a. the "interference hypothesis." I should point out that one of the article's authors, Roxana Moreno, is a well known researcher on cognitive theories, along with Richard E. Mayer both of them have worked together on numerous seminal research projects in the field of cognitive theories.