

Math Edutainment Game for Girls Grades 1-6

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Purpose

The purpose of this project is to create an engaging and educational game for girls in elementary school that will help girls develop crucial math skills, find greater confidence in their abilities, and continue to pursue their math, science, and technology educations. This web-based math “edutainment” game will feature a comprehensive plot, a diverse and stereotype-free cast of characters, rewarding game play, and six different mini-games.

Background

Many girls shy away from taking advanced STEM classes. Research done by the Girls, Math & Science Partnership states that boys still outperform girls in primary science, math, and technology classes. Girls are severely under enrolled in Advanced Placement Computer Science and Physics classes, and middle school boys typically have better performances and confidence in their abilities than girls in math and the core sciences. Several suggestions have been made to try and correct this problem. These include giving girls the feeling of control over their abilities, creating a “New Science Girl” archetype to break the “math is for geeks” stereotype, encouraging girls to explore math and science beyond the classroom,

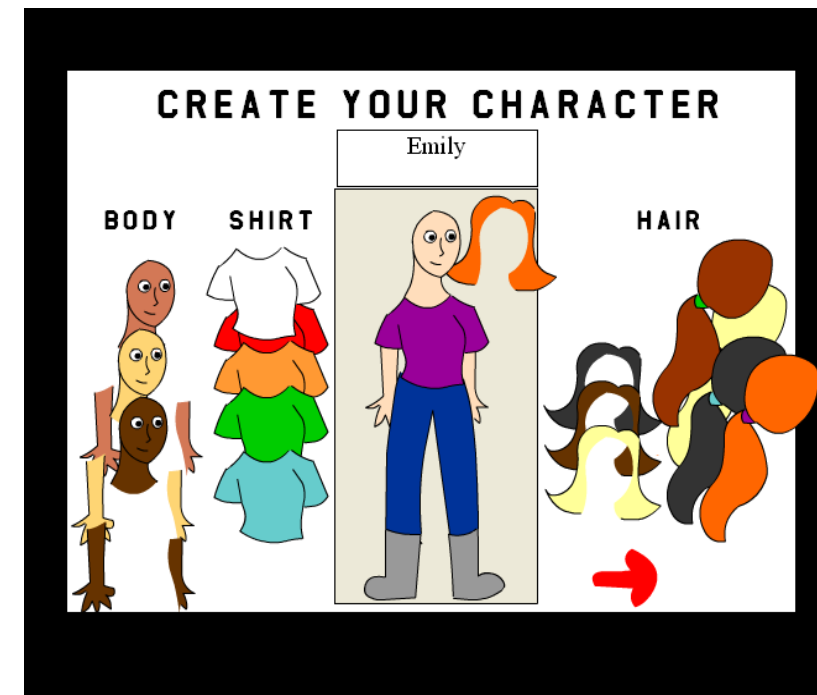


Figure 1.1 Character customization

giving specific feedback, providing strong female role models, and providing spatial skills training. Specific suggestions for implementation for edutainment games include strategy-based game play, social interactions, diverse and interesting characters, narrative plots, non-stereotyped creativity, and appropriate challenge level.

Procedures

This project will use Adobe Flash MX and ActionScript 2.0 to create an interactive, web-based math edutainment game. There will be six mini-games that will focus on basic math skills, word problems, spatial skills, patterns, comprehensive knowledge and awareness of female scientists and various careers in math, science, and technology.

This game will be driven by a comprehensive plot based on a fictional space station and will allow players to customize their own character. Through a dynamic plot and a score tracking system, the player will be given constructive feedback and the ability to see their progress.

Analysis

This project will be tested by FCPS elementary students using tjhsst.edu/~eclarke to distribute the game. The students would be asked to take a survey before and after playing; these results would be compared to see if the game had enhanced their confidence and interest in as well as their understanding of math.

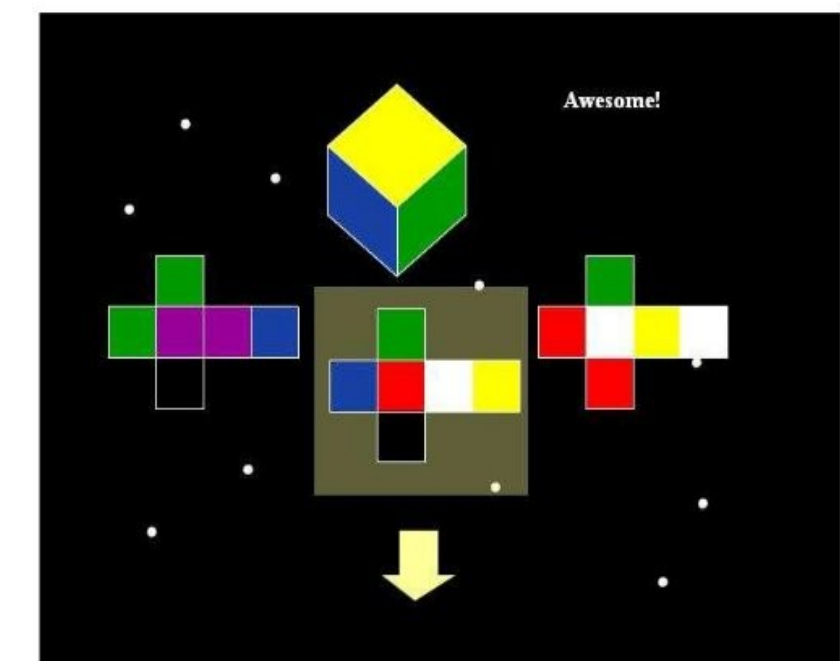


Figure 1.2 Spatial skills training

- "Encouraging girls in math and science: IES practice guide", Institute of Educational Sciences, 2007. http://www.braincake.org/files/EncouragingGirls_IES2007-03.pdf (September 10, 2008)
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- "Tech-savvy: educating girls in the new computer age", Commission on Technology, Gender, and Teacher Education, 2000. <http://www.aauw.org/research/upload/TechSavvy.pdf> (September 15, 2008)