Game Design Through Mentoring and Collaboration

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For teens in the MD, VA & DC area

\[ y = 2x + 3; \]
\[ \text{score} = \text{score} + 1; \]
\[ \text{if (score > 300)} \]
\[ \text{lives} += 1; \]

www.BtheGame.com
301-633-7319
McKinley Technology High School
Washington, DC

Biotechnology – **Information Technology** – Broadcast Technology
Participants

• 135 students (93% male)
• Avg. age is 13.1 (range 9 - 19)
• 27% 8th graders
• 80% African American
• 9.1% Caucasian
• 9% other/none
• 2.3% biracial/multiracial

Washington, DC – Maryland – Virginia
Project Goals

• Increase STEM Motivation
• Improve STEM Achievement
• Exposure to STEM Content & Careers
• Create analytical, creative thinkers
Approach

• Design and develop STEM video games
• Work with Scientists & Experts
• Site Visits and STEM Demonstrations
• Mentor Middle School Students
• Student Collaboration
Collaboration

Fostering Metacognition

- Extends student learning by putting students in the role of game designers. Students are challenged to:
  - Become metacognitive about how games function
  - Use of audio, visuals and text to communicate ideas
  - Know what helps users understand a game and what makes a game fun

Design Studios

- In an engaging “design studio” environment, students learn technical skills that they apply on projects that have real value in the world (Hetland, Winner, Veenema & Sheridan, 2007).
  - They collaborate and critique each others’ work
  - They reflect on what they have made and envision new possibilities for their projects and their future work
Mentoring

High School students with strong technological skills work with higher education experts to become mentors and instructors

- High School students serve as mentors to middle school students (and high school peers)
- A high school senior veteran of the “Be the Game” program taught the Mission Maker
- Mentors are designated to assist individual students experiencing difficulties

3 week summer mentor training

30 High school students identified with strong technology skills and mentorship potential will participate in a 3 week training program that hones their technical skills and teaches them how to teach (e.g., designing lessons, providing individualized help, tutoring, and running a “design studio”)

These students will try out their teaching skills by acting as instructors (under supervision of adult instructors) a three week “gaming camp” for middle school students
Implementation

- **Fall Game Design Session**
  - 10-weeks: Saturdays 10:00am – 12:00pm & 12:00pm – 2:00pm (60 students)

- **Spring Game Design Session**
  - 10-weeks: Saturdays 10:00am – 12:00pm & 12:00pm – 2:00pm (80 students)

- **Summer Institute**
  - 3-weeks: Weekdays 9:00am - 1:00pm (30 Students)

- **STEM Summit**
  - Admissions requirements, financial aid, STEM demonstrations
STEM Curriculum

- **Maya**: 3D modeling software application that is currently being used to create and manipulate objects and models, important images from other sources into the program, apply image rendering, animate their images, and even to practice GIS modeling concepts.

- **Alice**: A programming environment that allows students to engage in object-oriented programming techniques. Students taking this class were given an introduction to using an actual programming language to create their own computer games.

- **Mission Maker**: 3D game design software allows students to create their own video games. Students create games from a library of object models and include features such as characters, doors and tunnels that need to be opened, and actions. These actions are included by choosing elements from menus, representing programming and code.
Maya

Game Maker
Self-Efficacy

• 74% say they are good at Math
• 64% say they get good grades in Science
• 85% like to work on computers
• 95% think learning about technology is useful
• 67% say technology is not difficult for them to learn
Lessons Learned

• Preparation is essential
  • College process
  • Appropriate courses
  • College/Career selection

• Life happens
  • Prom, Babies, Parents

• Build capacity
  • Community expertise
  • Self-motivation
  • Community/School Partnerships
Questions?

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