

Game-Making

Project Title	Game-Making for Students and Teachers from Isolated Areas
Project Team	Dr Andrew Fluck, (SiMERR Tasmania), Margaret Meijers, (Teacher, New Town High School)
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Funding Agency	SiMERR and ASISTM, BELS, Intelligent Island Funding
Organisational Base	SiMERR Tasmania

Description

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This project created web-based resources which were used independently by students without the teachers needing a particularly high skill level. These resources were also used to support teachers to teach. The teachers completed a 10-week course where they were required to commit themselves for one to two hours per week in their own time to work through the tutorials. Several collaborative environments (forums, etc.) to support students and teachers were established. Teachers were able to discuss areas they were having problems with in mastering the material as well as discussing pedagogical issues. Students could also engage directly in the forums to get help.

Research questions included:

- Can games programming improve motivation in mathematics classes?
- How do teachers respond to this non-traditional approach?

Using computer-based game-making, students needed to use a wide variety of mathematical skills. For example, cartesian coordinates are used to locate icons on the screen. Interceptions are identified using trigonometric functions, algebra with values and variables, and vectors. Students also required significant skills in logic and problem solving, and used a mathematical language (GameMaker programming Language). It was also possible for those students to make games that actually demonstrate particular mathematical understandings or teach mathematics drills to younger students. Students were expected to make connections between the mathematics they learned in mainstream classes, and the formulaic strategic understandings of three-dimensional labyrinths containing game elements, which respond to user inputs through both visual and aural outputs.

Participants

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62 teachers, 152 students from Department of Education, Tasmania

Findings

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- Students and teachers believe that game programming helps improve learning achievement in mathematics in the areas of graphing skills, logical awareness and statistics.
- Well-crafted online materials provide reasonably satisfactory learning experiences. Students felt they could follow these slightly more easily than teachers thought they would be able to.
- Rural students were much more likely to see games programming as beneficial to their mathematical achievement than were urban students. Teachers saw increased enthusiasm for study, whereas students generally discounted any attitudinal effects.
- Teachers did not find it uniformly easy to engage with this form of online professional development, but they and their students did like this non-traditional approach.

Outcomes

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- Creation of a website <http://www.mindtools.tased.edu.au/gamemaker/default.htm>
- Meijers, Margaret (2006) Teaching in the 21st Century. Presentation at Quality Teacher bi-annual officer meeting, Canberra, ACT. Available [online](#).
- Margaret Meijers (2006) Online Collaborative Cultures to Support Game Making in IGL2006 Conference, Queensland.

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Margaret Meijers has been recognised for her work in this project by winning the Worldwide Microsoft Innovative Teachers Award. Her resources are being used globally and many teachers involved in her program in 2006 are continuing to use the materials and gain confidence in using game development tools. She has refined her approach taking into account that Game Maker is a difficult entry point, so starts students (and teachers) with Scratch.

The Game making course is now part of a CELO program for gifted and talented students with Margaret allocated 0.2 of a full-time teaching load to coordinate the program.

How this program articulates into education and work pathways is now the subject of a new project. As a follow up from this program a group of ICT educators and businesses representing pathways from kindergarten to high School, polytechnic, academy, university and work is being established.

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