Astroversity

The multi-player game Astroversity is being developed with the International Centre for Digital Content (ICDC) and uses gaming technology. The scenario, content, and puzzles were constructed iteratively in order to create an environment that has the same engagement as mainstream games but supports the development of collaborative and scientific enquiry skills in students aged 12 to 14.

Team

Susan Potts, ICDC,
John Moore University, Liverpool
Criterion Software
Ged Lee, Headmaster,
Hurst High School, Northumbria
Professor Angela McFarlane,
University of Bristol
Dr Richard Joiner, University of Bath
Futurelab

Technology
Pentium 4 PC (networked)
Renderware, Criterion Software

Outline

You and two friends are taking the search and rescue course at the Astroversity – an orbiting academy where gifted students are trained to become space explorers. Your robotic tutors guide you on effective methods of data gathering, deductive reasoning on toxic gunk levels, and communication requirements as you patrol empty hangars looking for dummy victims. During this training session disaster strikes - the academy is hit by an alien vessel releasing poisonous toxins into the atmosphere. You and your friends must now put your new skills to the test as you really rescue your fellow students.

The above is not the packaging from a new Playstation game - but a project to support students aged 12 to 14 to develop group skills such as listening, turn-taking, and providing justifications for suggestions, and scientific enquiry skills such as data-logging, hypothesis generation and testing, and analysis of data. Astroversity is an innovative mix of virtual and real; it has the look and feel of commercial computer games - there are different levels and a high quality graphical interface, but the students have paper maps to physically record their findings from explorations. Moreover, the students share the virtual environment, the probes they control interact, and they must agree one path for the rescue.

The prototype was implemented as a resource for children in Years 8 and 9 working in the same room. However, since the system is being developed using gaming technology, in the future it could be played using games consoles or over the internet.

Learning and Research Objectives

The goals of the project were to:

1 Determine if it is possible to create a game that achieves the same level of engagement as mainstream games, but which enables children to learn about and practise collaboration and the processes of generating and testing hypotheses.

2 Develop a better understanding of how to design collaborative educational digital resources and how learning processes are impacted from these findings.

Way plotting

Research and Development Process

Futurelab worked with ICDC to develop the Astroversity scenario – in particular, in defining a situation which would be motivating to students yet require collaboration and scientific inquiry skills. This meant working with students in three schools from Years 8, 9 and 10 using paper, and two-dimensional prototypes. This process allowed Futurelab to develop a task that was found to be engaging by students as well as require them to discuss strategies and share information. In addition, it allowed ICDC to trial the layout of the interface, develop a method of displaying information and test the possibility of students working in a virtual and real environment.

Findings

From the development work and a trial of the final version with data from 18 students aged 14, who used the software three times as part of their science lesson we found:

- collaboration and scientific enquiry skills are not instinctive in students aged 12 to 15

- involving students in the design leads to a task that students are engaged and motivated by

- having to share one environment and exchange data to decide one route led to discussion. This discussion encouraged exploratory talk as students had to explain why a suggested route was dangerous and thus understand the need for multiple data sets and contributions

- the multiple methods of representation - virtual and paper-based - were understood and made use of by the groups, but greater familiarity with game formats appears to be proportional to less use of paper to record findings

- students are poor at reading advice in a game. Without an adult observing, students do not explain discrepancies in self-assessments and appear to ignore written prompts designed to highlight strategies and make the group reconsider the process

Further findings from the project will be available on the Futurelab website and are being presented at a number of international conferences.

Contacts

Futurelab: Mary Ulicsak,
mary.ulicsak@futurelab.org.uk
ICDC: Susan Potts,
s.potts@livjm.ac.uk

Futurelab
1 Canons Road
Harbourside
Bristol
BS1 5UH
United Kingdom

tel +44 (0) 117 915 8200
www.futurelab.org.uk