

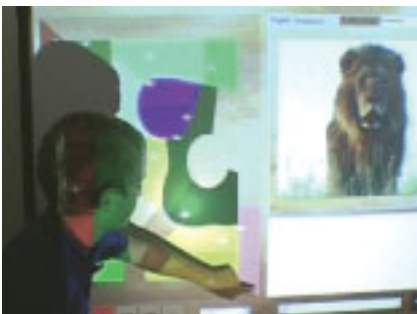
Savannah

Savannah is a strategy-based adventure game where a virtual space is mapped directly onto a real space. Children 'play' at being lions in a savannah, navigating the augmented environments with a mobile handheld device. By using aspects of game play, Savannah challenges children to explore and survive in the augmented space. To do this they must successfully adopt strategies used by lions.



Partners

Mobile Bristol
BBC
Futurelab



Technology

Global positioning system
Wireless network
3 servers (games, events, maps)
PDAs
Mobile Bristol client
PC interface software

Outline

Imagine 'being' a lion, imagine the sights and sounds you would come across, imagine the challenges you would face to stay alive, to protect your cubs, to ensure your pride's survival in the face of man-made and natural obstacles. Then imagine what it would be like to enable children to experience this 'first-hand' as part of their education.

The Savannah project is an ambitious combination of games technology, mobile computing and innovative approaches to teaching and learning. It aims to support Year 7 children to become collaborative, reflective and imaginative learners in the fields of ecology and ethology. The project brings together the motivation of games play, with the near magical quality of wireless computing to create an engaging world where children learn through a cycle of experience and reflection, of 'being' animals and reflecting on animals' behaviour in their environment.

The prototype consists of two related arenas of activity. In the first, children have to survive 'as lions' outside on a playing field, interacting with a virtual savannah and exploring the opportunities and risks to lions in that space. Children are given GPS-linked PDAs through which they 'see', 'hear' and 'smell' the world of the savannah as they navigate the real space outdoors as a pride of lions. The second domain, the 'den', is an indoor space where children can plan, research and reflect

on their outdoor game-play through accessing resources such as the internet, books, adult experts and an interface that has tracked their outdoor activities.

The experience lasts over a three-hour period in which children are set an overall challenge (to survive as lions in the savannah over the course of a year) within which there are three levels: 1) to claim territory through scenting; 2) to hunt successfully in the wet season; 3) to survive hunger and thirst in the dry season. The children are placed firmly in the driving seat: on completion of each level of the game outside, they return inside to the den to review their success on an interactive whiteboard that has tracked all of their movements; they then decide whether to repeat the level, having conducted further research and planning, or to go on to the next level.

Learning and Research Objectives

In this project we are addressing two related top-level research questions:

- Is it possible to create an iterative learning process that combines experiential learning with reflective development of understanding?
- How can we exploit the new opportunities offered by wireless technologies to create collaborative and active learning experiences outside the classroom?

Research and Development Process

The Savannah project originated in a three-way discussion between Futurelab, the BBC's Natural History Unit and colleagues at Hewlett-Packard working within the Mobile Bristol initiative. The interests of these three groups married through a shared interest in creating engaging experiences. The partners all saw the potential offered by both new wireless GPS technologies, and the archive of natural history footage resulting from the BBC's many years of work in this area.

Preliminary concepts for a 'lion game' were trialled in 2002 with Year 7 children at Cotham School in Bristol in a 'design a game' workshop led by Futurelab, and with science teachers in Bristol. Following this, the concept was refined through iterative discussions between all the partners, before the Mixed Reality Lab at Nottingham University was commissioned in May 2003 to implement the Savannah games server using its experience in mixed virtual/reality gaming.

Initial trials of Savannah were held with 10 children in November 2003. Final trials were held in April 2004, with 35 children from six different schools in Bristol. In the final trials we worked with expert science and technology teachers to create a coherent experience that brought together the external game-play with indoor reflective activities, and which drew on a wide range of digital, human and paper-based resources for research activities.

Preliminary Findings

The project has demonstrated that mobile technology games can generate high degrees of engagement and enthusiasm in children – the children

consistently rated the experience above both traditional school activities and computer games play. This process of learning while moving around outside seemed to contribute to children's ability to remember spatially organised information. The combination of play and planning within the game enabled children to explore knowledge from a number of different perspectives: through experience; through reflection on experience; and through research and discussion.

With regard to the role of games in education, Savannah has identified that the main motivating feature of games is likely not to be complex graphics, but the establishment of appropriate and authentic challenges. Alongside this, the trials have demonstrated that in order for games technologies to prove effective in education, we need to develop new learning environments in which children are given high degrees of control over how they manage their time and their information resources. After the first set of trials, we refined the challenges and redesigned the learning environment to enable more specific challenges and greater learner control, and were rewarded by children who spent three hours working 'on task' in the game.

Partners

Futurelab managed the project and provided the educational research and trials needed to explore its effectiveness as a learning experience. The project brought together the expertise of Mobile Bristol's wireless computing initiative, with the BBC's longstanding experience in natural history and the Mixed Reality Lab's track record in creating virtual/physical games experiences.



Boys playing in the savannah



Children researching and planning

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