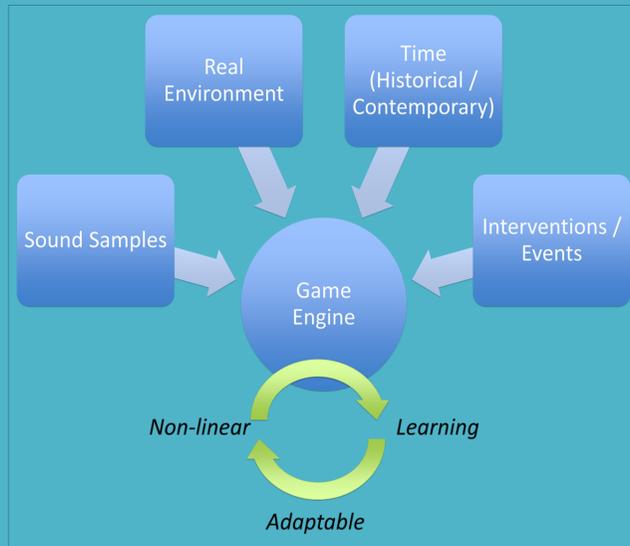
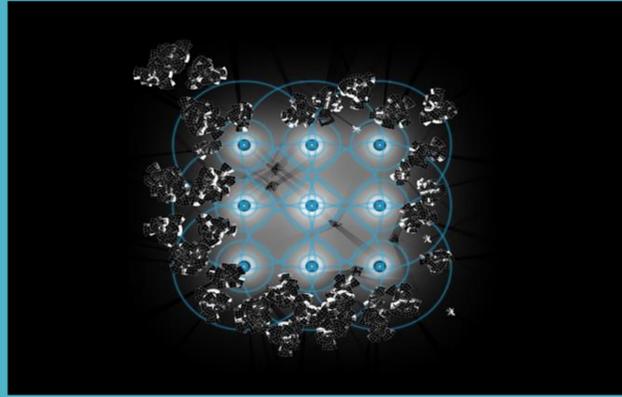


Introduction

To assess the feasibility of spatialized sound as a learning tool and to enhance and build engagement with nature and biodiversity through the use of contemporary technologies.

Augmented Reality allows an individual to experience the real world and supplement reality without complete immersion inside a synthetic environment (Kesim & Ozarslan, 2012). Predominately visual and associated with computer technology, sound has until recently been overlooked within Augmented Reality (Wang, 2018); the purpose of this pilot project is the prototype development of an Acoustic Augmented Reality (AAR) activity. AAR attempts to augment a real time event in order to enhance participant experience.

According to Akcayir and Akcayir (2017), the rapid technological growth of Augmented Reality provides great pedagogical potential, and educational researchers have increasingly recognised this. Through undertaking a pilot study we will discuss the potential use of spatialized sound as a learning tool with school children and older learners.



Participants

Main participants: young people initially from a 'Young Ecologists' group and then from local primary and secondary schools in Kielder Forest, Northumberland.

Methodology

In this project, we examine the educational potential from overlaying acoustic information onto the participants' physical world through spatial audio, and using experiential learning to enhance and build engagement with nature and biodiversity (past, present and future). We do this by devising an activity whereby participants are given a variety of acoustic cues (mostly animal sounds) to encourage them to explore a woodland environment, and in the process experience a more immersive interaction with nature.

The project: Developing a portable rig of 8 battery powered units deployed at Kielder or in urban locations/schools etc. The speaker/amplifiers are capable of autonomous operation.

Proposed approach: Each unit to house a sensor, processor and speaker/amplifier. On triggering the first sensor, a pre-programmed set of sounds is played, with volume panned so as to suggest the movement of animals.

Once the sequence is complete, if people are still within range, a second sequence is initiated. Multiple species and simultaneous virtual movements can be created. This proposal will be simple to deploy at any suitable location.

Subject to feedback from testing on site, a more bespoke solution can be developed.

Data collection and analysis will be based on observing the young peoples responses to the experience, through various lenses, including literature, the limitations of the technology, the young people and the researchers.

Soundscapes

- We often underestimate and neglect our sense of hearing in the study of environments around us
- By becoming more attentive and critical listeners, we can identify and explore our environment in a richer way
- Soundscapes change over time and reflect interventions by man and nature
- 'Acoustic Ecology' (Schafer, 1993), explores the composition of our sonic environment akin to that of music
- Can be used as educational aids and enhance appreciation and understanding of our environment



Computer Game Sound

- Provides interactivity and variation of soundscape elements
- Elements in the soundscape can be individually controlled in terms of volume and other properties
- Affords augmentation of the natural (real) environment
- Provides mechanisms to explore an environment throughout time: the past, present and future
- Can introduce narrative, induce imagination, and provoke emotional responses



Implications on future research?

We aim to explore the dominance of 'eye culture' and the deteriorating ability of young people to listen (Schafer, 1993) and investigate further the potential that soundscapes and AAR has on contemporary concepts such as 'wilding'. Further we will explore how AAR can be harnessed to progress UK Government policy, such as 'A Green Future: Our 25 Year Plan to Improve the Environment'. In particular connecting people with the environment in order to improve health and wellbeing.

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