

Playing with physics



EDUCATION

Innovative GATE pilot showcases the use of games in the classroom.

Pilot:

Education "CarKit"

Partners

Utrecht School of the Arts (HKU)
Waag Society

Budget

625,000 euro

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The GATE Education pilot attempts to showcase the future of education through demonstrating the possibilities of game based learning in the classroom. HKU's R&D program Applied Game Design, developed a race game that helps players to understand Newtonian physics. The game, called CarKit, proves that serious games can be fun...

The main goal of the pilot is to showcase the possibilities of game based learning to the educational sector and creative industries in a demo based on state of the art game design & development insights and techniques. CarKit demonstrates the potential of the application of games in the classroom in the form of a race game that enables children to play with the laws of physics. Furthermore the pilot aims at a better understanding of the (im)possibilities of the adaptation of educational content to a game context and to share this understanding with the educational sector and creative industries.

Towards a design methodology for educational games

The results of the GATE Education pilot consist of a fully playable demo of a state of the art race game validated in Dutch classrooms. HKU designed and developed a game as an addition to and embedded it in existing educational methods. The design posed several challenges: the game had to be fun to play and a rewarding experience in itself, but also had to succeed in motivating players to understand Newtonian physics and succeed in transferring the appropriate knowledge. Successfully translating educational content into game mechanics and

"Understanding Newtonian physics through playing games"

gameplay is difficult. By using a highly iterative design method, allowing us to constantly validate concepts and design decisions both in relation to player experience and the educational context, we succeeded. At the moment we are close to delivering a demo that successfully faces the posed challenges. Apart from CarKit and its abilities to showcase the future of game based learning, the value of this pilot also lies in the knowledge we gained in regard to design methods for educational games. We were able to share our insights in regard to the design methods and design processes of educational games in several papers, presentations, demonstrations, workshops and symposia.

Validating and scaling

The educational sector and creative industries have an urgent and vast need for insights into the mechanisms and effects of educational games and the translation of these insights in the form of design methods and business cases. At the moment we are testing CarKit within the classroom together the Freudentahl Institute for Science and Mathematics Education (Utrecht University). Furthermore we are developing a business case around the CarKit concept. This case also includes the translation of the CarKit concept to other educational domains.