



Sparkling Science >

Science linking with School

School linking with Science

Research Project

01.10.2010 – 31.03.2012

Playful Learning

Research on motivational aspects and knowledge transfer in digital educational games for children aged 10 to 14 years

LEADING INSTITUTION

Danube University Krems, Department for Image Science, Division Applied Game Studies
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SCHOOLS INVOLVED

Brigittenauer Gymnasium, Vienna
RG/WRG Feldgasse, Vienna
HS Bad Zell, Upper Austria
HS 2 Pregarten, Upper Austria
HS Königswiesen, Upper Austria
NMS Freistadt, Upper Austria
BRG Keplerstraße, Styria

SCIENTIFIC CO-OPERATION PARTNER

University of Graz, Institute of Physics, Didactics of Physics, Styria

PARTNER FROM ECONOMY AND SOCIETY

ovos realtime3D gmbh, Vienna

PROJECTWEBSITE

www.playludwig.com



Basic Information about Sparkling Science

Sparkling Science is a research program of the Federal Ministry of Science and Research (BMWF) which started in 2007 and adopts an unconventional way in the promotion of young scientists that is unique in Europe.

The specific characteristic of the program: so far 168* projects (94 of them have already been completed) scientists work side by side with young people in current scientific research projects: Sparkling Science supports big research projects and supported from 2007 until 2010 also smaller school research projects.

In the 114 big research projects (42 have already been completed) the young colleagues take an active part and work independently on parts of the research projects. As junior colleagues they introduce important suggestions into the research approach. They collaborate in the conception and conducting of investigations, conduct polls, collect data, interpret these together with the researchers and present the results at schools, universities and even at scientific conferences.

In a second initiative within the Sparkling Science program the BMWF awarded grants to smaller projects that were submitted and conducted not by the involved research institutions, but by the schools, who designed and lead the projects themselves. In these projects, too, schoolchildren worked closely together with researchers, supporting state-of-the-art research activities and contributing to the results.

Both sides of the program is/were open to a broad thematic spectrum. Research is carried out on all sorts of different topics: from mechatronics and molecular biology to migration research, from acoustics and biometrics to literature research.

* Status quo: January 2012



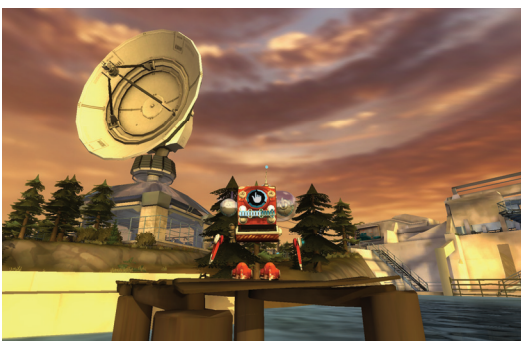
One Example out of 168

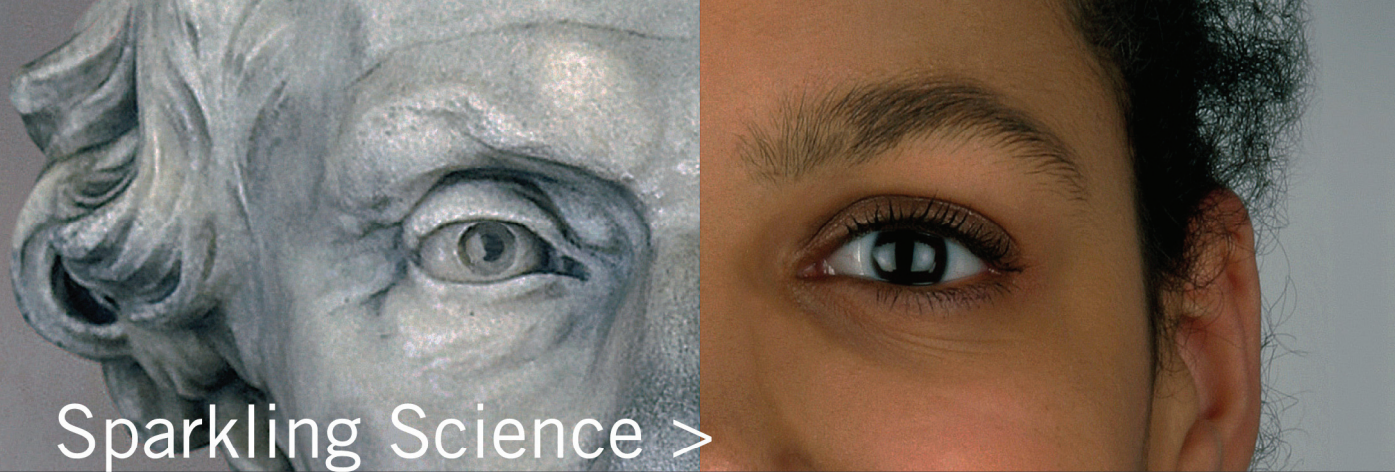
Playful Learning

Current research on serious games allows only little inference about the optimization of knowledge transfer. To fill this gap we develop a research scenario to study motivation and knowledge transfer factors in educational games for children from 10 to 14.

“Ludwig” is an interactive learning game built around a serious topic: renewable energy. It is developed within an iterative didactic design approach developed by Wagner (2009). The development process is following three primary principles of game play: freedom to learn from errors, freedom to experiment, and freedom to make an effort (Osterweil, 2007). Empirical research with both focus- and expert groups will be part of this first application. This new design approach allows a scientific discussion of our results, the development of our empiric methods is influenced by the transfer model of Jürgen Fritz (2003). A mixed-method-design with different quantitative and qualitative methods will provide a validation of our scientific insights.

Students and teachers are asked to join the project from the very beginning (conception stage). They will frequently give their inputs in various playtesting sessions during the whole didactic design process. The teachers’ inputs are used to evaluate different aspects of applicability in class. Based on the inputs of students and teachers, we will develop the gaming objects and a research prototype. The students’ inputs strongly influence the progress of “Ludwig” and therefore the outcome as well as the quality of the research project. To allow the students to be aware of the whole research process, they will get feedback on how the findings of the test-settings are implemented in the development process of the gaming objects and the research prototype.





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