Developing a child-driven online education environment for third world countries

Most of the third world countries lack educational facilities, specifi- cally experienced teachers and materials. This is detrimental to the development of those countries, as many children do not have the chance to experience proper education.

Recent studies done by Sugatra Mitra have demonstrated the abili- ties of children to learn with the help of a computer, especially where group learning in stimulated. Next to that, follow-up studies strong- ly suggested a positive effect to learning rate from the presence of an (uneducated) supervisor, aptly renamed "the Granny effect".

Our project aims to make use of both these elements, incorporat- ing both effects into a single computer system, where an avatar helps young children in the third world learn about interesting new sub- jects. Using inexpensive computers, it is a low-cost solution which could be the next big step in development for third world countries.

Requirements

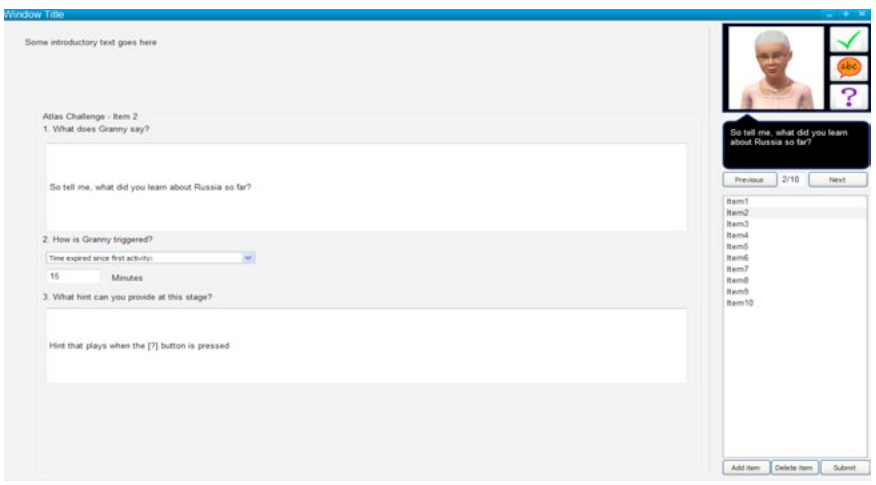
- Virtual teaching assistant (avatar)
- Tasks management for teachers
- Self-assignment and evaluation of tasks
- Analysis of students behaviour
- Encouragement for creativity
- Trustful avatar behaviour [2]
- Encouragement for collaboration
- Relevant feedback on answers
- Multilingual support
- Internet access

Scenarios

Adding a challenge

Lisa, a 30 year-old elementary school teacher from the Netherlands, recently taught her own class about the sun and she thinks this would interest third world children as well.

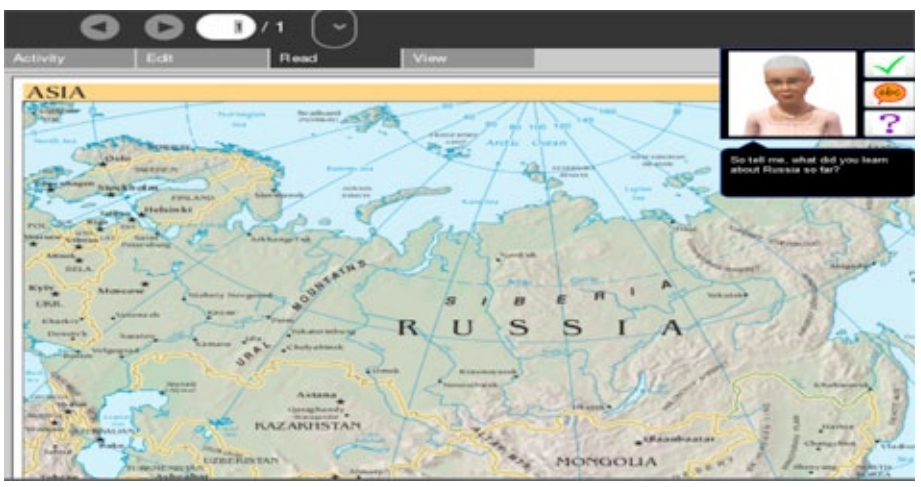
After logging in on the website she clicks the "Add Chal- lenge" button. This takes her to the challenge entry form. She figures a good way to get the children's interest is to ask the question; "What is the weight of the sun?". She enters the question on the form and clicks "add". She hopes this will grab the children's attention so she enters a more difficult follow-up question: "Why do plants need sunlight?", and clicks "add" again. She thinks this will keep children busy for quite a while so she decides to leave this challenge to two questions. She clicks the "Done" button and is re- turned to the main page.



Carrying out a challenge

Raja is an eleven-year-old boy who lives in India. One day, a computer is brought to his village, and he hears that this device is meant to help children learn. Today he is seated before the computer, trying out the new system with two of his friends.

The screen shows the avatar, a woman asking him to find out the weight of the sun. Raja's friend tells him to try out the browser. Raja opens the browser, and searches the in- ternet for information about the sun. They find not only the weight of the sun, but also how big it is and what it looks like from up close. They give the answer to the avatar, who reacts delightedly, and asks them to find out why plants need sunlight. They find out together how photosynthesis works, explaining to each other the parts they don't under- stand.



[1] Sugata Mitra. The child-driven education. TED Talk 2010, http://www.ted.com/talks/sugata_mitra_the_child_driven_education.html
[2] Cowell, A.J., and Stanney, K.M. (2005). Manipulation of non-verbal interaction style and demographic embodiment to increase anthropomor- phic computer character credibility. Int. J. Human-Computer Studies, 62, 281–306.

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