Computer Games in Education

Computer Literacy 1 13

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Topics

- How go learning and playing together
- Does every computer game facilitate learning?
- Should we use them at home or/and school?
- Is it only kids who can learn by playing?
- Quality is needed

Learning by playing

- Learning by playing is a huge part of our childhood
- Toddlers learn through playing
- Play is a major way for children to learn self-expression and social behaviour
- Even animals learn through playing when they're young

Learning by playing Computer Games?

- How do computer games fit into learning?
  - They can introduce children to computers in a fun way
  - They are also used for a long time for example for pilots and firemen in form of simulations
  - Many school kids spend a lot of time in front of a computer. So why not use video games to facilitate learning?
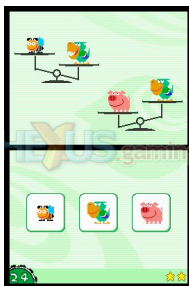
What Games

- Software for your PC
  - There is an assortment of games on the market
  - It's easy to find reviews for them
- Online learning games from websites
  - There's a variety of games online
  - Can be difficult to find reviews

What Games - Software

- Grand Theft Auto IV… NO educational game
  - GTA is more what educators like to call a no-brainer
- Educational games fulfill a specific purpose, e.g. do Math in a more exciting way or create your own stories
  - For example Big Brain Academy, Storybook Weaver

Big Brain Academy

Storybook Weaver

What games - Online

- Wide range of games available
- Most are very simple especially when their from no obvious organisation
- Some can be more sophisticated like the BBCs Bitesize webpage which also aims at secondary students
- Example for variety:
  - http://www.lethsd.ab.ca/mmh/games/top100.htm

Online educational games

Design

- Very colourful, bright
- As simple as possible
- Too much can be distracting
- Sometimes avatar used as tutor

Use in Schools

- Should not substitute traditional classroom learning
- In the UK students normally get in touch with computer aided learning at schools
  - Usually by using an electronic whiteboard or PCs
- If pupils should play computer games to enhance learning is decided by schools or even teachers
  - Since this is highly individual there should be a better guideline about the use of computer games inside a classroom and which computer games are suitable

Use at home

- Can be helpful at home to facilitate learning
- If children have the feeling they play and learn they might be more motivated
- If online material is used the child should always been supervised since quality of material and correct content can vary a lot
- Child might also have questions the computer cannot answer
- Should not substitute traditional learning since material is limited

Age groups

- Main target → Primary school children
  - Explains colourful pictures and funny shaped avatars
- Adolescent is difficult group to target
  - Not many games out there which facilitate secondary education
- Adults
  - Targets specific job-groups, e.g. pilots, firemen

"Games" in job training

- For example: Flight simulation for pilots
  - http://www.virtualaviation.co.uk/training/locations.html
- Graphics are much better than in children's educational games
- Displays real world circumstances in virtual surrounding
- There's usually a teacher/trainer present

Flight Simulator

Fire Fighting

http://www.flame-sim.com

Organisations

- There are many organisations/associations out there who develop and promote the use of simulations and computer games in various areas of education
- Find a list here (unfortunately European link is dead):

http://agelesslearner.com/intros/simulations.html

Quality check

- Previously mentioned organisations can help with quality check
- For educational gaming software you should read reviews
- Since there is so much material available online you might have problems to see which games are of good quality and which are not
  - Sometimes there are reviews
  - At other times you have to trust your own feelings and experience

Academic view

- Judy Robertson, previously University of Edinburgh, now lecturer at Heriot Watt
  - She researched if children's learning was enhanced by letting them author their own computer games
- READ her article: It's online in your course schedule

http://www.inf.ed.ac.uk/teaching/courses/cl1/slides/index.html

Academic view

- Other research states that:

  - Even "action" video game playing has positive effects on Students visual selective attention[1]

[1]M. Pensky, "Digital game-based learning" in Computers in Entertainment (CIE), Vol:1, Issue 1, New York 2003 (pp 21 -21)

Key points

- Children learn by playing
- Educational games on software
- Educational games online (sometimes hard to check quality)
- There are learning games out there for every generation and even job-training (games here called simulation)
- !Read paper about the question if children's learning was enhanced by letting them author their own video game!