

Involving teachers in games and virtual learning environments

Learning games and virtual environments in education
the LEVI-coordination project

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Background

- Even though the Finnish school has proved to be successful in international assessments of school achievements (PISA, OECD 2010), the virtual game-based learning environments are not widely experimented and exploited in schools.

Challenges:

- Inability of new environments to pervade into the curriculum
- Teachers' attitudes and suspicions
- Lack of technological resources
- Lack of knowledge about potential games
- Lack of training and support (principal, teacher networks)
- Lack of time

The goals of LEVI

Learning games and virtual environments in education



- LEVI's aim is to enhance the pedagogical use of virtual learning environments and game based learning solutions.

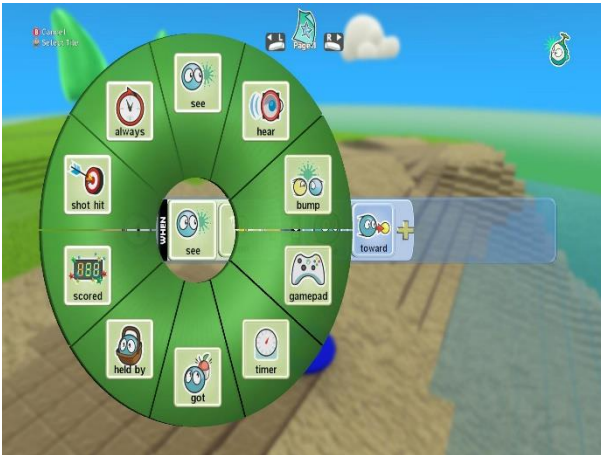


- The coordination project guides the use of learning games and virtual worlds in schools and also collects good practices and spreads them to teachers.



- LEVI also manages testing and piloting in schools with teachers and students - Do u want to join?

Objectives



- **To develop a teacher- and curriculum-friendly programme to involve teachers in virtual game-based teaching and learning environments in order to renew pedagogy and, finally, to enhance students' motivation as well as experimental knowledge building, problem solving and collaborative ways of learning.**

What project LEVI offers to teachers?

- Links to learning games which are categorized by subjects and class levels
- Ideas from other teachers and experts to schools.
- Information of new learning environments and practices related to them
- The possibility to take part on the progress of games and virtual environments

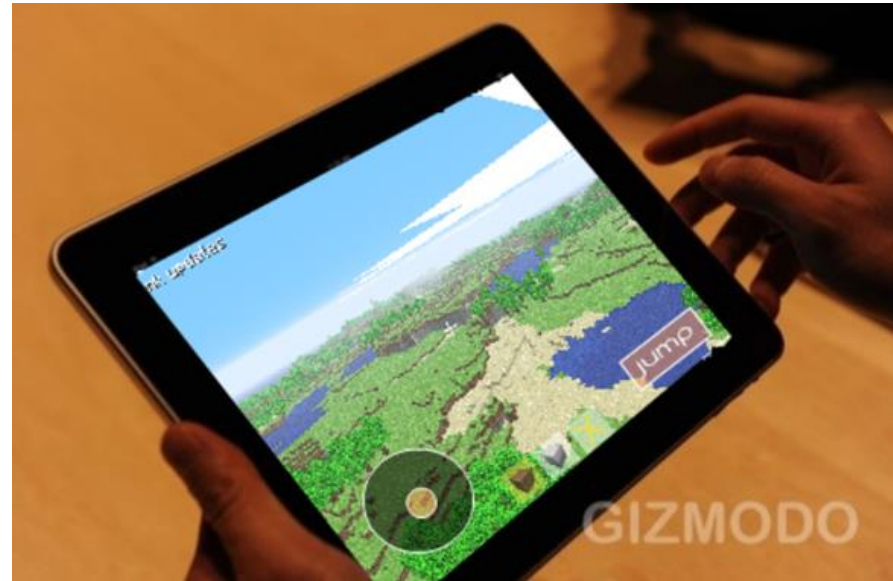
www.peda.net/polku/ovi



New kind of learning?

In Finland:

”Pupils, (boys) who play more than 15 h/week, are getting much better degrees in English comparing to those who doesn't play at all.”



New Skills of Participatory Culture: Media Education for the 21st Century (Henry Jenkins 2007)



- **Play** — the capacity to experiment with one's surroundings as a form of problem-solving
- **Performance** — the ability to adopt alternative identities for the purpose of improvisation and discovery
- **Simulation** — the ability to interpret and construct dynamic models of real-world processes
- **Appropriation** — the ability to meaningfully sample and remix media content
- **Multitasking** — the ability to scan one's environment and shift focus as needed to salient details.
- **Distributed Cognition** — the ability to interact meaningfully with tools that expand mental capacities
- **Collective Intelligence** — the ability to pool knowledge and compare notes with others toward a common goal
- **Judgment** — the ability to evaluate the reliability and credibility of different information sources
- **Transmedia Navigation** — the ability to follow the flow of stories and information across multiple modalities
- **Networking** — the ability to search for, synthesize, and disseminate information
- **Negotiation** — the ability to travel across diverse communities, discerning and respecting multiple perspectives, and grasping and following alternative norms.

Potential of games for learning

- Motivating and engaging
- Motivation often linked to learning new skills and contents
- Suitable challenges → Flow
- How could this be coupled with learning the subjects of the curriculum?

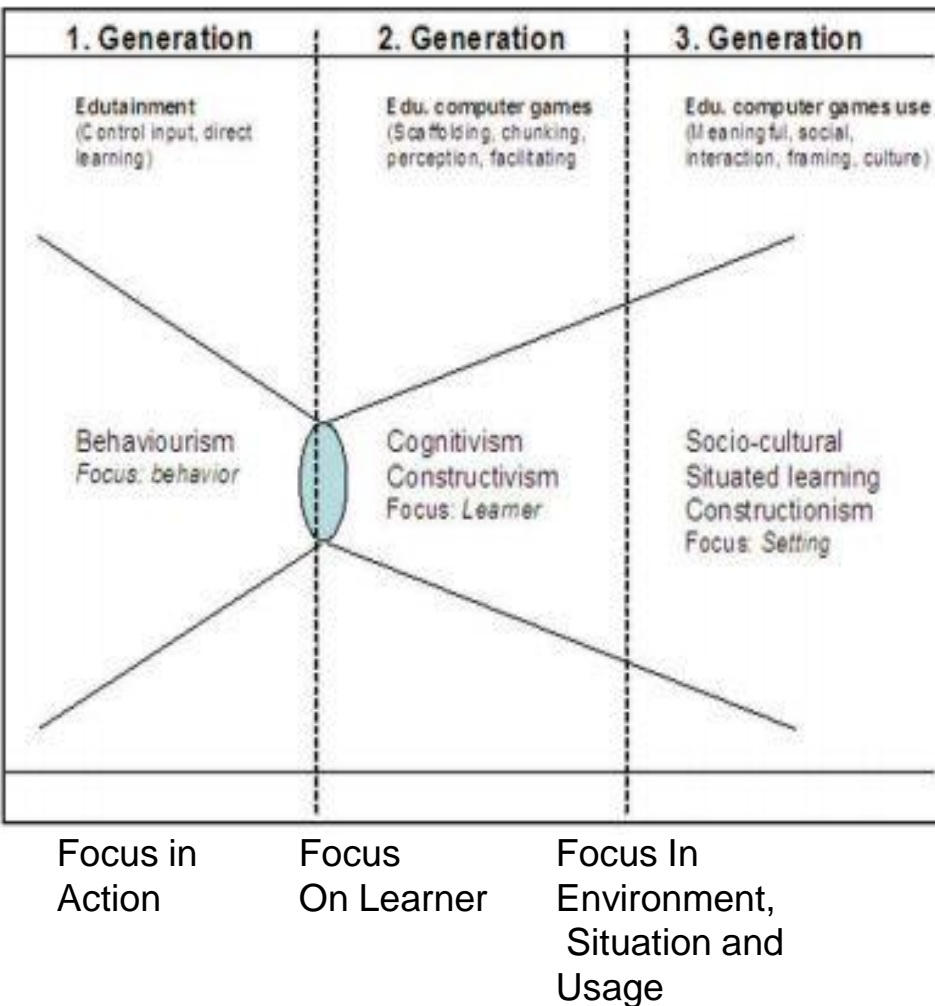


Possibilities of games



- It has been proven in many studies that games **motivate** (Gee, Prensky) and that is in many cases based on the learning of new subjects.
- Gamer can achieve a **flow-state**, when she struggles to find a suitable challenge. The sense of time disappears and the gamer **is fully concentrated** on the activity.
- If this game experience, the flow-state could be harnessed to the use of learning according to the curriculum, it could open completely **new possibilities**.

The generations of learning games and the theory



1. Generation: Edutainment

Stimulus-reaction, the training of single skills

Behaviorism

2. Generation : Learning games

Fractioning of information, giving an combining according to capabilities of the learner

Cognitive constructivism

3. Generation : Game environments and Game like usage

Social interaction, connections to meaning, situation and culture.

Sosiocultural learning concept

Egenfeldt-Nielsen (2007)

How and why the games should be used in education?

- Digital opportunities for the use of games has not yet been fully understood.
- The teachers are interest in the games, but are struggling to find good games for their own needs
- Also the latest research, techniques, and materials are not always accessible to teachers
- Teachers have always used games in teaching !
- Games are typical in informal education – the formal education still often uses games as a snack, but not very useful part of the teaching

Learning games and virtual worlds

- Games can teach communication, teamwork, critical thinking, the virtual world and reality, fusion and separation.
- Activates students as players, data collectors and producers.
- Games can provide a multi-disciplinary learning environment that provides opportunities for cooperation in the best case, learning new things, and knowledge construction.
- Games can also be used for example in entrepreneurship education and leadership skills lessons.

Reasons for using learning games

Support

Reward



Motivation

Integration

Games are motivating

- Variation of Games is large
 - > Different games for different learners
- Activates players
 - > Flow
- Playing together
 - > learning together
- Problem solving
- Seeking for information





Games are rewarding

as well for SEN students as talented pupils

1. Own progress -> self worth

Speed, skills, levels...

2. Teacher appreciation

Positive feedback,
better degrees

3. Friends appreciation

”He’s good opponent in games.”

”I want to be in his team. ”



Games in Integration

- Integration between different school subjects
 - Angry Birds – Physics
 - Against All Odds – Geograpy, Religion, Social studies, 12 different languages...
- Games in foreign language
 - Case in Finland:
 - *”Pupils, who play more than 15 h/week, are getting 1,5 numbers better degrees in english, comparing to those who doesn’t play at all.”*
- Integration between different ages
 - Older <—> Younger
 - SEN pupils <—> Ordinary learners



Games in SEN

- Variation of Games is very large
 - Different games for different learners
- Many games are adaptive
 - Level is suitable
 - Learning brick by brick
- Motivating as a homework
 - questions get harder as students progress
 - Next levels, coins, tasks makes you to work harder



Usage of games

- Pedagogical Entities
 - Example. Vesikoulu (KE) tai Kovat kertoimet (Hi, YHT, UE, kiolet)
- As part of the curated content
 - TULUVAT -hanke
- Differentiation tool
 - Example. Luki-Luukas (AI)
- Self-directed material
 - Example. mathematics learning programs
 - Ekapeli, Sumdog, Timez Attack tai Manga High

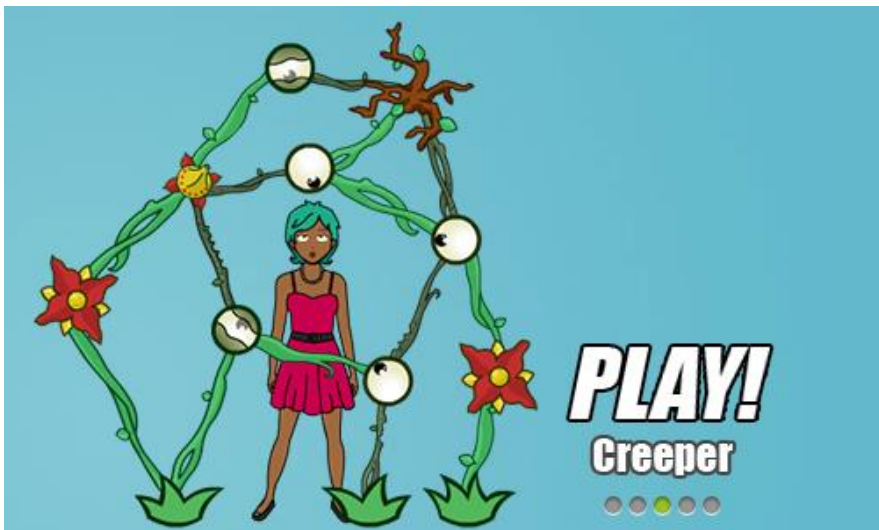




Free games to
make math fun.

Sumdog - implementation

- The game can be explored by clicking "play as a guest."
- The teacher signs in first and after that she registers her school. The teacher gets redistratation e-mail.
 - The first teacher who signs in can confirm the other teachers from the school
 - The pupils/students sign in the game from the directory: classes:
 - The name of the class
 - The names of the pupils/students
 - The Sumdog gives the usernames and passwords to the pupils/students which can be printed on paper
 - The teacher can add or remove pupils/students easily



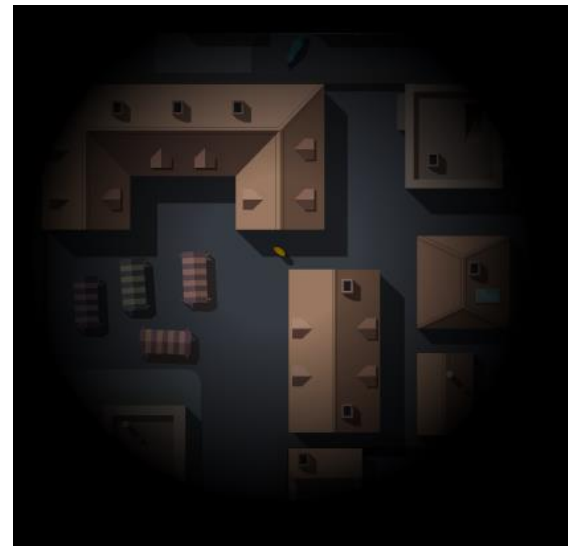
Challenges

- ▣ Cultures meet, but
 - people will not laugh at all ...
- ▣ Learning games are studying
 - What games are compared?
 - It takes getting used from the student
- ▣ Verification of learning
 - assess output
- ▣ Time management problem
 - “Curriculum-sizing”



Can learning games achieve?

- Ignite learning?
 - A sense of self-efficacy?
 - Understanding of issues and information processing?
 - Genuine teamwork and participation?
 - Deep processing?
 - Genuine effort?
 - Compassion ability?
- Or are the games just a small snack and technical trickery?



LEVI project offers teachers

- Links to learning games
- http://peda.net/polku/ovi_en
- The games are divided by subject and titled class levels
- Curriculum -correlation in the Finnish curriculum
- Articles and research findings of learning games

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