



# MOMENTS

## Collaborative Learning, Games and Social Simulations – Pedagogical Models in Designing Network-Based Education

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TieVie 27.10.2006, Helsinki

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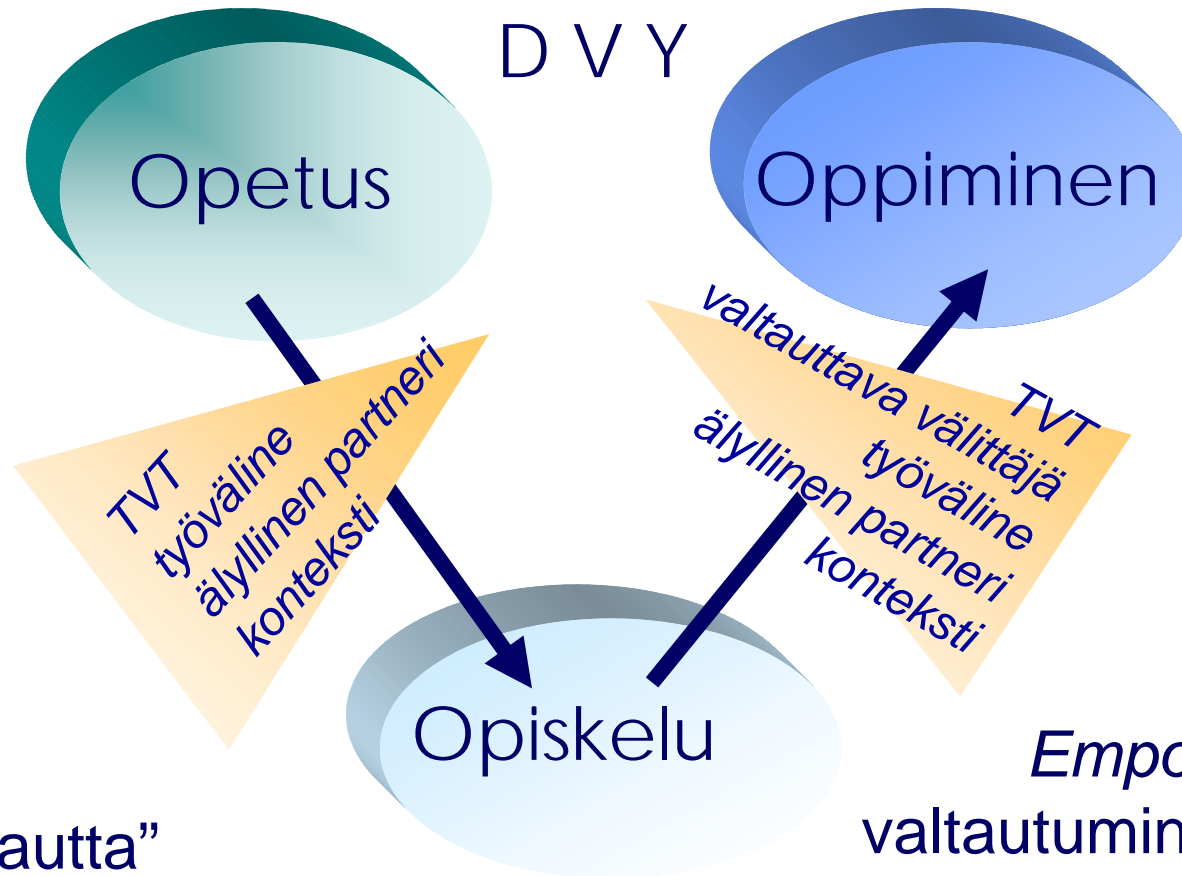


# 1 MOMENTS Project (2003–2005)

- *Models and Methods for Future Knowledge Construction: Interdisciplinary Implementations with Mobile Technologies*
- Research e.g. on pedagogical models for the design, implementation and assessment of network-based education (NBE) → a new integrated theoretical model that is based on an analysis of existing methods and models as well as future learning needs
- Part of the Academy of Finland's *Life as Learning* programme
- Co-run by four Finnish universities: Tampere University of Technology (Pori), Advanced Multimedia Centre, University of Helsinki, Media Education Centre, Uni of Lapland, Centre for Media Pedagogics and Turku, Digital Culture



# 2a Theoretical Background



”Oppiminen  
opiskelun kautta”

(Tella ym. 2001a; 2001b, 26; vrt. esim. Uljens 1997;  
Kansanen et al. 2000; Kynäslahti 2000)

*Empowerment –  
valtautuminen, sisäistä  
voimaa ja uskallusta*

## 2b Theoretical Background

- mediakasvatuksen tutkimus tieteenalasta käsin (Kotilainen & Suoranta 2005, 74)
- kasvatustieteen ja didaktiikan näkökulma
- deskriptiivinen mediakasvatus mediakasvatukselle ominaisten ilmiöiden tutkimista (Vesterinen ym. 2006)
- teleloginen tulkinta
  - viestintä ja välitteisyys opetuksessa, opiskelussa ja oppimisessa, vuorovaikutteisten tieto- ja viestintätekniikan välineiden ja sovellusten analyysi (esim. Tella 1995; Tella & Mononen-Aaltonen 1998; Tella ym. 2001)
  - etäopetuksen teorian huomiointi (esim. Holmberg 1995; Kearsley & Moore 1996; Meisalo 1996; Falck ym. 1997; Salminen ym. 1997; Kynäslähti 1997)



## 2c Theoretical Background

- *verkko* – tvt:n mahdollistaman ympäristön metafora
- paikka tai tila, jossa toimitaan – viestitään, kohdataan, opiskellaan ja opetetaan
- yhteiset periaatteet ja toimintakulttuuri, erilaisten tilanteiden ja käyttötapojen huomioiminen
- lähtökohtana fyysisen ympäristön, välineiden ja käyttötapojen (välineellinen, viestinnällinen, pedagoginen, yhteisöllinen) analyysi
- opetuksen suunnittelusta opetus- ja opiskeluympäristön suunnitteluun

(Mannerkoski 1997; Lintula 1999; Vahtivuori 2001; Vahtivuori, Wager & Passi 1999, 266–267, Tella ym. 2001; Nevgi ym. 2003; Vahtivuori-Hänninen ym. 2004.)

## 2d Didaktinen verkkoympäristö

- taustalla mediakasvatuksen viitekehys, opiskeluympäristötutkimus ja virtuaalikoulun käsite
- sisältää perinteisen fyysisen toimintaympäristön (F2F) lisäksi verkossa toimimisen ja verkon pedagogisesti tavoitteellisen käytön opetuksen, opiskelun ja oppimisen apuna (mm. aktiivinen tuottaminen)
- omaa työtään ja toimintaansa refleктоivan opettajan pedagogiset valinnat ja osaaminen korostuvat
- opiskelijalle oppimistavoitteita, haastavia ongelmia, välineitä, vuorovaikutusmahdollisuuksia sekä ohjausta

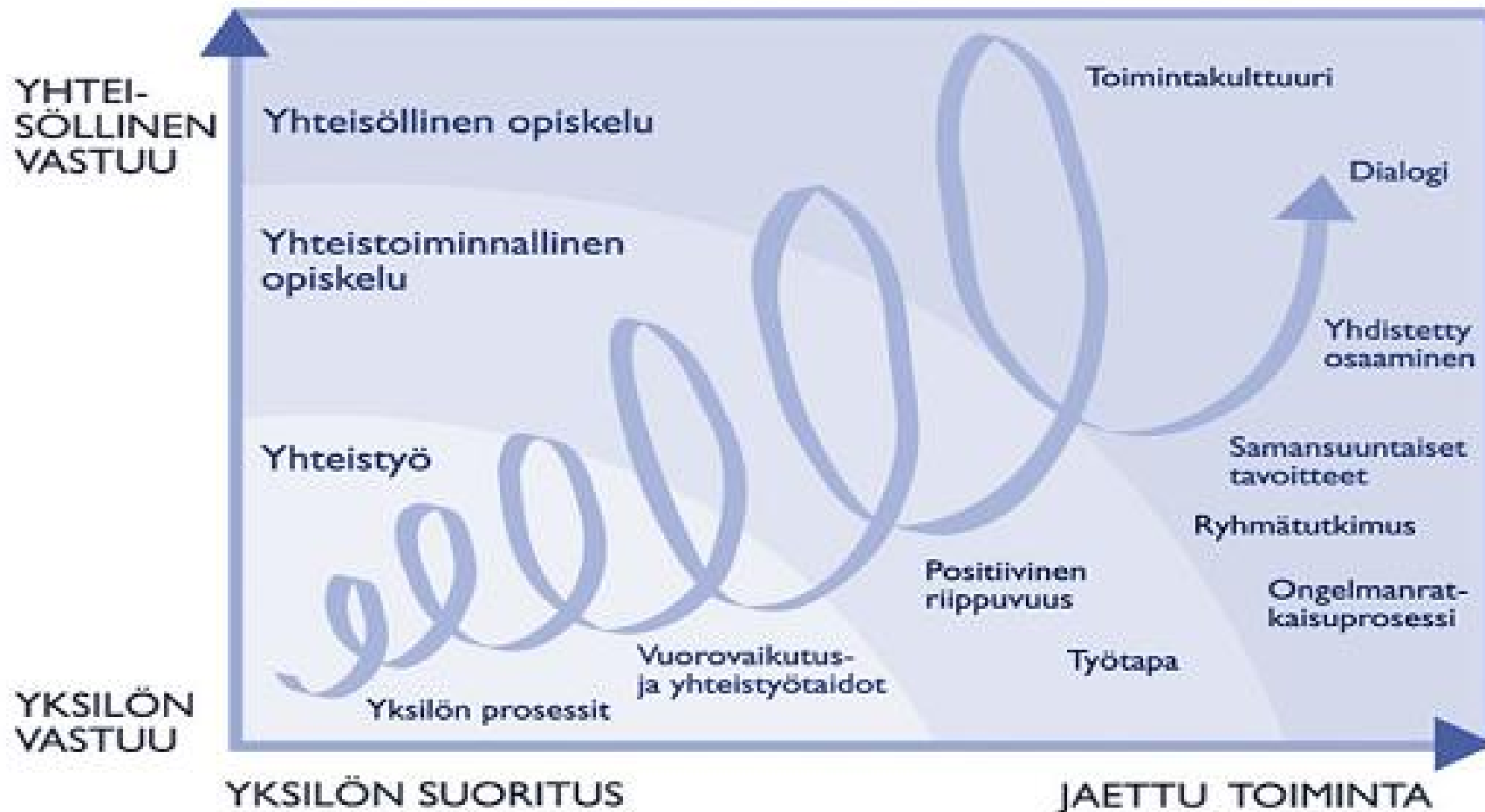
(Tella ym. 2001a; 2001b, 22–37; vrt. myös Vahtivuori, Wager & Passi 1999; Kynäslahti 2001; Nevgi ym. 2003; Tissari ym. 2004; Vahtivuori-Hänninen ym. 2004; Vesterinen ym. 2006)



## 2e Theoretical Background

- Pedagogical model—*Plan or model by which it is possible to direct the planning of instruction and design teaching and studying materials* (Joyce & Weil, 1980)
- Decisions and activities in the TSL situation are often based more on everyday information emerging from intuition and experience than the research information (Kansanen et al., 2000; Jyrhämä, 2002)
- More freedom of choice and skill to choose the most effective pedagogical solution, when having the know-how from theory and different pedagogical models
- With the aid of pedagogical models, it is possible to find means for the design of research-based, reflective and high-quality NBE



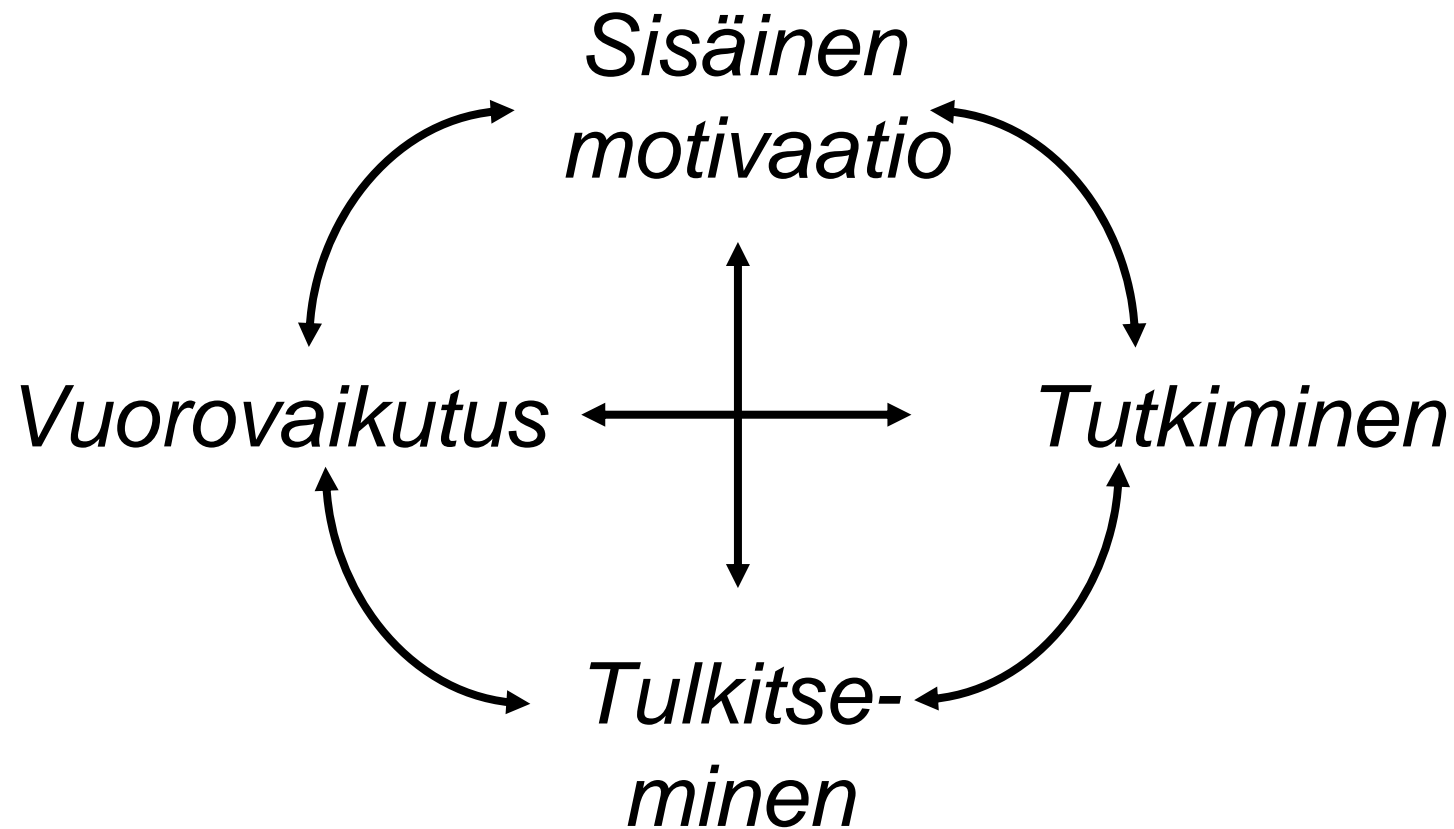


Yhteistyöstä ja yhteistoiminnallisuudesta kohti yhteisöllistä opiskelua (Vahtivuori, Wager & Passi 1999, 271; Tella ym. 2001, 207)



# 2.1a Group Investigation Model (GI)

Sharan & Sharan 1992, 18–19)



## 2.1b Group Investigation Model (GI)

- 1) Students encounter puzzling situation
- 2) Students explore reactions to the situations
- 3) Students formulate the study task and organize for study (problem, definition, roles, assignments)
- 4) Independent and group study
- 5) Students analyse and integrate progress and process
- 6) Recycle activity and evaluation (Sharan & Sharan 1992; Joyce 1997, 102)



## 2.2a Learning Through Simulations Model (LTS)

### 1) Orientation

- overview of social simulation, broad topic, concepts, explaining simulations and games

### 2) Participant training

- setting up game scenario (rules, procedures, roles, scoring, goals, types of decisions to be made)

### 3) Simulation operations

- conducting game or social simulation activity and administration
- obtaining feedback and evaluation
- clarifying misconceptions
- continuing simulation

### 4) Participant debriefing

- summarizing events and perceptions, difficulties, insights
- analyze process
- compare simulation activity to real world
- relate simulation or game activity to course content
- appraise and redesign the simulation (Joyce et al. 1997, 130)



## 2.2b Social simulation or role-playing game?

- Social simulation and game-based simulation as well as role-play or the conceptual definition of playing are complex and diverse (e.g., Tompkins, 1998; Järvinen, 1999, 175–176; Prensky, 2001)
- Simulation—imitation of a certain actual situation, instrument or system and the dynamics and causal connection relationships
- Role-play or game—investigating certain rather strictly limited everyday behavioural models (Crookall & Oxford, 1990)
- Game-based social simulation (c.f. Brougère, 1999; Ruben, 1999; Vahtivuori & Lehtonen, 2003; Järvinen, 2003; Lehtonen, 2004; 2005)
  - Simulations and role-playing games as the copying and modelling of an everyday social situation, problem or collaborative process
  - Describes a social activity in particular and the simulation of collaborative problem-solving by means of group investigation and game-playing

# Miksi yhteisöllistä opiskelua verkossa?

## Tietenkin!

- Nouse barrikadeille liputtamaan yhteisön edestä, yksi kaikkien kaikki yhden. Ota kantaa laadukkaan opetuksen, tavoitteellisen opiskelun ja yhteisöllisyyden puolesta!

## Vastustan!

- Kriittisten silmälasien läpi tarkasteltuna koko homma on täyttä hapatusta. Argumentoi huuhaata vastaan. Verkko on briljanttien yksilöiden!

**Väittäkää, kommentoikaa, olkaa rohkeita!**



# Miksi/miksi ei yhteisöllistä opiskelua?

- + pelit tuttuja, riippuvuus, monipuolisuus, kehittää ajattelua → suunnittelu yms. taidot
- pelit vieraita, tarvitaan omakoht. kokemusta, muuten vaikeaa, riippuvuus



# 3 Research Questions

- 1 How the pedagogical models function in NBE?
  - 1.1 How the collaborative models (GI Model) function in NBE?
  - 1.2 How the game-based models (LTS Model) function in NBE?
- 2 What kind of support teaching and guidance process will need in NBE?





# 4a Progress of the Study 1

## 1) Planning Phase I

- Defining the aims of the partners and the case study and its implementation
- Engaging the different levels of participating organizations

## 2) Planning Phase II

- Course design and content creation with the teachers and educators with the aid of training coordinators and technological experts
- Planning of guidance and tutoring process in NBE



# 4b Progress of the Study 2

## 3) Implementation Phase

- Implementation of the Finnish Defence Forces' course in Military pedagogy and Leadership (3 ECTS) for young officers
- Teachers (N=2) and students (N=28), technological assistant, pedagogical specialist for the learning environment, researcher
- 1) Orientation [F2F]: substance, learning methods and learning environment, R5 Vision Portal (Currently TieturiVision), part of the Web-based Military Academy, 2) group building, 3) group investigation and simulation operations [NBE], 4) reporting, giving feedback and evaluation [F2F and NBE]

## 4) Evaluation Phase

- Documenting and analyzing the students' and the teachers' action
- Collecting and evaluation of the web discussions (5 common, 6 → 21 group forums)
- Teachers' interviews (N=2)
- 98-variable web-questionnaire for the students (N=28) analysed with SPSS 11.5
- Qualitative content analysis of the groupware data and interviews



# 4c Research Methods and Data Collecting

- Both qualitative and quantitative methods
- Ethnographic research
  - (Virtual) ethnography, microethnography
  - Characteristics of ethnographic research, new methodological demands by NBE, researcher's role, data collection with the aid of different technological tools
  - Holistic approach, data collection focuses on getting all-inclusive picture of the target group (Hammersley, 1990)
  - Long-term process evaluation, tacit knowledge, holistic understanding
  - Participating and watching closely the process of the study community in F2F and on the web environment (5 common discussion forums, 6 group discussions with 21 sub-discussion forums)
- Web-based questionnaire for the young officers (N=28) of the Finnish Defence Forces' pilot course in Military Pedagogy and Leadership (3 ECTS)
- Interviews of the teachers of the course (N=2)
- Classification, qualitative content analysis, and statistical analysis of the data

# 4d Implementation 1

1. Real leadership and training situations, as well as the scientific explanation models as the starting point of the course planning
2. Two contact units—*orientation* (students got acquainted with the working method and net environment through collaborative learning practice) and *debriefing*, plus one *net-based unit*
3. Students split up on the basis of their interests into *five groups*
4. Groups designed *problem-oriented case studies* and *four social simulations* or role-playing games on leadership and training situations
5. Game-playing and simulation were realized in text-based form, aided by net environment discussion forums and chat



## 4e Implementation 2

6. Teachers provided *feedback on the groups' process and written production* (every day a letter of command and comments for questions)
7. Each day, the teachers wrote about the tasks and programme for the next workday in a as well as commenting on students' questions. Versatile *digital source material* was available, net material, video excerpts
8. Groups reported on their assignment in writing
9. R5 Vision's (Tieturi Vision) Training Portal (group-related and common forums, an editor for the material production and an ePortfolio for the collation and storage of material, chat)



# Table 1. Main categories of the text data

Päälukokka	Kuvaus	<i>f</i>
<b>A Suunnittelun lähtökohdat ja pedagogiset mallit (<i>Design and the use of pedagogical models</i>)</b>	Opetuksen suunnittelun lähtökohdat, pedagogiset mallit ja ennakointi	98
<b>B Verkko-opetuksen toteutus (<i>Implementation of NBE</i>)</b>	Toteutus, työtavat, menetelmät ja käytänteet	76
<b>C Ohjaus ja opetus (<i>Guidance and teaching</i>)</b>	Verkko-ohjaus, opetus, opettajan rooli, toiminta ja opiskelun tukeminen verkkoympäristössä	109
<b>D Yhteisöllinen opiskelu (<i>Collaborative TSL</i>)</b>	Yhteisöllinen opiskelu, ryhmätutkimusmallin vaiheet ja eteneminen sekä tiimityöskentely	125
<b>E Pelit ja simulaatiot (<i>Games and simulations</i>)</b>	Simulaatiot, roolipelit, simulaatiomallin vaiheet, tunteet, toiminnallisuus ja elämyksellisyys	264

## 5a Some Key Findings / GI Model

- Models supported the multi-professional design and implementation of collaborative NBE in a hierarchical operating culture
- Models assisted the educators, planning teams and studying community 1) in the organization of working, 2) specification of tasks and 3) guidance
- The analysed course was found collaborative according to the students and teachers
- Voluntary grouping around group investigation themes linked with the GI model appeared to have been very successful
- The tight schedule in particular taxed the depth of pivotal problem-solving and the investigation stage
- Collaborative learning was experienced as motivating and inspiring for the study of leadership and military pedagogy in a net environment

## 5b Some Key Findings / LTS Model

- Game-based social simulations underpinned functionality embedded in one's own experimentation and emotionality
- Educational use of game-based social simulations enables to develop student-oriented teaching
- Simulation and role-play require a well-timed, careful and sufficient pre-orientation, a background provision and a motivational phase that is sufficiently long and profound
- The key aspects of game-based social simulations consisted of target orientation and acquaintance with the background and the relationship of simulation with the students' own real-life experiences





# 6a Conclusions

- Creation of the new teaching and studying culture
- A higher theoretical level is demanded when designing and pre-planning NBE than face-to-face teaching
- Pedagogical models facilitate the collaborative design of research-based and reflective NBE
- Engagement and tight collaboration between different levels of organization and partners is crucial
- Enough resources and time available for guidance is needed
- New methods and web-based learning environment motivated students (R5 Vision Portal, Web-based Military Academy)
- Collaborative and game-based models seemed to be a possible way to organize studying in more student-oriented way and support teaching and guidance in NBE



## 6b Pohdintaa

Millaisia interventioita tieto- ja viestintäteknikka mahdollistaa ja luo ollessaan yhteydessä opetukseen, opiskeluun ja oppimiseen?



kulttuuriset diskurssit ja käytänteet

pedagogiset mallit

toiminta

yksittäiset teot

(ks. Moments-metamalli; esim. Lehtonen & Vahtivuori 2003; Tella ym. 2004; Tella & Ruokamo 2005)



## 6c Pohdintaa

- monitieteellinen ja tieteidenvälinen tutkimus
- ei yhtä ainoaa kattavaa lähestymistapaa → mediakasvatuksen tutkimus alisteista tutkittavien ilmiöiden ja niiden kontekstien vaateille
- erilaisten metateorioiden ja -mallien hyödyntäminen mediakasvatuksen tutkimuksessa

# So what does the future hold?

- " I'm happy to report that learning will thrive, but trainers will have to merge back into operational roles. Oh, and Training Departments are dead, at least as we know them. As are Learning Management Systems and any other relics of centralized distribution of learning. Learning that is informal, collaborative, contextual, real-time, and peer-generated, will be the mode of tomorrow."
- (G. Parkin, June 2005 **commenting on** "Innovations in E-learning Conference by the US Naval Education and Training Command and the Defence Acquisition University (DAU)



# So what does the future hold?

- "The most profound shift that will take place in training over the next three years is a movement away from traditional, formal, course-based learning (classroom or online) and towards clever integration into the workflow of learning-enabling tools like Instant Messaging and informal collaboration processes. The other is the need for a deeply rooted culture of collaboration throughout the organization.
  - G. Parkin, June 2005 **commenting on** "Innovations in E-learning Conference by by the US Naval Education and Training Command and the Defence Acquisition University (DAU)
  - See [parkinslot.blogspot.com/2005/06/learning-innovations.html](http://parkinslot.blogspot.com/2005/06/learning-innovations.html)



**Prêt-à-Portable**

Thank You!

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[\[http://www.edu.helsinki.fi/media/hellaraportti.html\]](http://www.edu.helsinki.fi/media/hellaraportti.html)





# Ryhmätutkimusmalli

- 1) tutkimusaiheen valinta ja ryhmien muodostaminen
- 2) suunnitteluvaihe
- 3) työstövaihe
- 4) tutkimustulosten esityksen suunnittelu
- 5) tulosten esittely
- 6) tutkimustyön arviointi. (Sharan & Sharan 1992; Joyce 1997, 102)



# Studying Through Simulations Model

- 1) Orientaatio
  - 2) Osallistujien perehdytys
  - 3) Simulaation tai pelin toteutusvaihe
  - 4) Yhteinen purkuvaihe (Joyce et al. 1997, 130)
- Malleja hyödyntämällä opetus-opiskelu-oppimisprosessiin pyrittiin luomaan elämyksellisyyttä ja samalla lisäämään vuorovaikutuksen määrää opiskelijoiden välillä (ks. myös Tella et al. 2001; Vahtivuori & Masalin 2000)



# Simulaatioista

- tehokas mutta vielä rajoitetusti hyödynnetty opiskelun ja opetuksen väline
- hyvä ja toimiva simulaatio on usein lähellä pelillisyyttä useissa pelillisyyden määritelmän näkökulmissa ja osa tutkijoista sijoittaakin ne lähes samaan kategoriaan (esim. Crawford)
- harjoittelusta ja simuloinnista on syntynyt pelejä ja pelejä on taas puolestaan sovellettu ja kehitetty soveltuvaksi simulointiin (Mäyrä 2003)
- sosiaalisissa simulaatioissa opiskelijat eläytyvät todellisen elämän sosiaalisiin tilanteisiin ja mallintavat niitä

**Table 1.** Variables describing the collaborative character of the course (Vahtivuori, Lehtonen & Torkkeli, in print).

