

Creating and sharing knowledge in 3D Virtual Learning Environments – reflections from on-going projects

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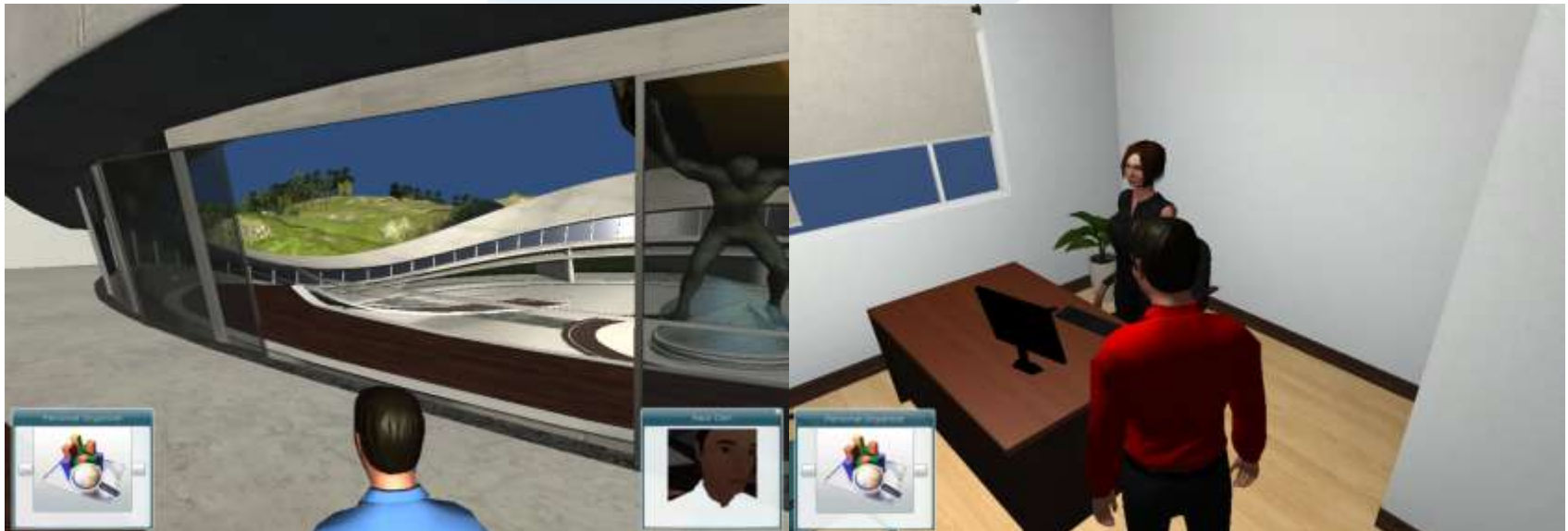
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TARGET: Transformative, Adaptive, Responsive and enGaging EnvironmenT

- Serious Game: interactive computer simulation for business and education, learners confronted by simulated scenarios
- Virtual World ('Lounge') to support interaction, discussion and collaboration amongst learners



TARGET Gaming Environment



TARGET 1st and 2nd Virtual Summer Schools: 2010 and 2011

- NTNU Virtual Campus in Second Life, Sept.-Oct. 2010-2011
- Core events:
 - Student projects: creating visualizations of research projects and curriculum topics and presenting through role-plays
 - EU project meetings and international seminars
 - Norwegian Science Week
 - 2nd Summer School in conjunction with EU CoCreat project
- Creating and sharing knowledge within communities:
 - Students
 - International researcher community
 - Partners
 - General public

Seminars 1st TARGET Summer School 2010



Student projects 1st TARGET Summer School 2010



Student projects 1st TARGET Summer School 2010



Virtual Research Arena as a part of the Norwegian Science Week 2010



EU project presentations 2nd TARGET/CoCreat Summer School



Student projects 2nd TARGET/CoCreat Summer School 2011



Student projects 2nd TARGET/CoCreat Summer School 2011



Summarizing Summer School activities

- **Community events** allowed extending **social networks** across countries and institutions => promoting research environments by creating a **socializing place** around project presentations
- Participants used a number of **shared artifacts as catalysts of collaboration** such as:
 - Constructions on the Virtual Research Arena and student constructions
 - Building tools , meeting facilities, '**points of focus**', e.g. exhibition booths
- Participants explored innovative ways of **capturing, storing and mediating knowledge** through **3D visualizations and role-plays**
- 3D constructions capturing the knowledge acquired by different generations of students and researchers will be stored in a '**project gallery**' constituting the **community repository**

Summarizing Summer School activities (2)

- How do we identify that learning is taking place ?
- Signifiers of learning taking place, especially of high level concepts (such as threshold concepts and troublesome knowledge)- including but not limited to:
 - Change in discourse
 - Enhanced and extended vocabulary
 - Taking part in community creation / networking activities
 - Change in functions and roles in the knowledge environment: from “consumer of knowledge” to producer/distributor, negotiator/developer of knowledge
 - Summer School example:
 - The Virtual Research Arena developed by students served as ‘**boundary objects**’ between different research communities and general public
 - These **boundary objects** contributed to establishing a common ground, **shared understanding** and **vocabulary** among community members by to a significant degree taking advantage of **visual symbols**, interactive elements and aesthetics means

Summarizing Summer School activities (3)

- 3D virtual worlds – good for providing an environment where experiences are shared and distributed
 - From mere presentation to PBL (problem based learning)
 - 3D visualizations
 - Creativity
- Can web 2.0 tools be connected to serious games and 3D virtual worlds enhance the learning experience?
 - Taking experiences from games to expressive and reflective learning contexts
 - Avoid disruptions in students' everyday online social activities
- Emerging challenge and opportunity: ***How to design teaching and learning environments where serious game/3D virtual worlds are combined with web 2.0 apps/tools***

Combining 3D virtual worlds with Web 2.0 tools: potentials and possibilities

- Enhancing social interaction
 - May lead to the establishing of a gamut of social learning affordances; from communities of practice to networks
 - Seamless integration with learners' everyday online social practices
- Giving space for individual reflection
 - 3D visualization and elaboration of educational content
- Providing smooth interchange between formal and informal learning contexts
 - Informal networks in addition to formal – may enhance interactions among peers
 - Immersive community spaces and associated community events
- Technological challenges
 - Platform integration
 - Identity management

Conclusions/Work ahead

- Integrating 3D virtual worlds/games and web 2.0 tools: several possible directions
- Community analysis framework: iterative process
- Communities of practice => communities of interest
- Focus on social network analysis
 - To enhance the overall design of teaching and learning environments
 - To facilitate insight into what learners find difficult (i.e. threshold concepts and troublesome knowledge)
 - To facilitate formative evaluation and to provide possibilities for various kinds of intervention in the learning process
- Focus on social creativity/diversity
- Questions? Feedbacks?: ekaterip@idi.ntnu.no