Re-thinking a Cognitive presence framework for the utilization and transferability of the Jigsaw technique in open source virtual worlds

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Abstract

The article describes the implementation of an innovative “hybrid” course that derived in the existence of a combination between the Cognitive presence framework and Jigsaw transferability for describing and assessing more widely the adequate of the learning procedure.

Introduction

Open source virtual worlds (VWs), assert the persistent corollary of interactivity and social formalization of modeling, and allow users to design learning activities, in juxtaposition with contemporary pedagogical approaches.

Accordingly to these provisions the scope of this work focuses on the implementation of an innovative “hybrid” course (face-to-face and online) that derived in the existence of a combination between the Cognitive presence framework (Akyol & Garrison, 2011) and Jigsaw transferability (Pozzi, 2010) for describing and assessing more widely the adequate of the learning procedure.

The goals of this course:

- Engaging students in activities that exacerbate current key skills, such as exploration and critical thinking.
- Constructing the knowledge field in an authentic framework, as a result of teamwork, between active participants in learning communities.
- Developing, supporting and assessing innovative visual artifacts that students firstly taught from the instructor and the production was resulting from the connectedness with Open Simulator (OS grid).

IBL in OS grid: Instantiation of the Cognitive presence framework

As Van Joolingen, De Jong & Dimitrakopoulou (2007) noticed, IBL (inquiry-based learning), can engage the learners approach to build personal scientific approaches, offered in the area closest to the perception and reality. Participation in inquiry-based activities include critical examination of practices, involving users to develop comprehensive and relevant to their aspects knowledge and producing a “practical” understanding of what they do and what are finally trying to achieve.

For this case study we have used the IBL procedure. The present paper articulates and proposes a novel "blended" framework for Computer Supported Collaborative Learning (CSCL) approach, both in a computer lab and OS grid. The approach suggests a combined utilization of OS grid visual artifacts that created for the implementation of the course, in order to facilitate and examine the fruitful execution of the collaborative learning technique "Jigsaw" (see [J1]-[J7]) and its online transferability in OS grid (Figure 1). This premise frequently recapitulated through the use of a double-phased digital inequality approach for postgraduate students throughout June 2012.

The Cognitive presence framework describes (Garrison, Anderson & Archer, 2001):

- the core of the constructive learning procedure and exemplified as the result of an inquiry-based procedure,
• confirm the meaning of progression through the sustained reflection and discourse.

**Figure 1: The outline of the learning progression and the transferability of Jigsaw in OS grid**

The course describes the “Designing of a Collaborative framework for Learning Spaces & Artifacts in Virtual Worlds”. The decision focused on the possible use of “Collaboration & Design in Learning” (CDL) process and results in products, places, and experiences that are usable for the largest group of people and effects differentiated in teaching and learning process.

The ambition of this effort is:

(a) To create an effective framework for collaborative action that will help students to manage the organizational and structural complexity inherent by the utilization of Jigsaw and OS grid

(b) To discover and work collaboratively for the production of knowledge with instructor’s assistance, thereby reducing gradually the “cognitive overload”.

**Decisions for supporting and enhancing the learning progression**

The virtual platform of OS grid was entirely on a single server (standalone mode) to protect and block away any misbehaving users and supported by Imprudence client viewer (ver. 1.2). The persistent database SQLite adherent our research with the assistance of Freeswitch voice server ([http://opensimulator.org/wiki/Freeswitch_Module](http://opensimulator.org/wiki/Freeswitch_Module)) to accommodate verbal and non-verbal communication between members.

The pre-constructed spaces are one of the most important things that must be seriously on account, not only for the life cycle of a learning community, but also for the successful constructing projects. Thus, in this phase we proposed 3 different workplaces for the demonstration of knowledge filed in an “open source” VW and these are:
• **Students’ meeting place**, an accessible and ergonomic design virtual space for different categories of users (newbies or experts).
• **The arena of collaboration**, a virtual space for users for assuming different and distinct roles of collaborative applications.
• **The simulation place**, where students provide artifacts and tools that help to reduce the "cognitive overload" (Figure 2).

![Figure 2: Separating experts and action groups in OS grid](image)

Thusly, the decision was to utilize the OS grid Linden Scripting Language (LSL) for the construction of primary visual artifacts. These tools were in our plan for implementing and teaching students on how to construct for further courses and respectively are:

• **Presentation Board**: It is the main board in which students present their teamwork in other members by uploading with no cost jpeg or video files.
• **Interactive touch screen**: This screen includes machinimas (editing video of educational activities in a VW), and enhance scenes of constructing the knowledge field collaboratively.
• **Tablet**: Student’s tablet is a personal calendar and storage of notecards.
• **OS grids docs**: It provides a combination with Google docs and let students to create a source that is connected to the Internet (copy-paste the text from note cards).

**Conclusion**

First findings and rates of multiple linear regressions from qualitative and quantitative questionnaires showed that Jigsaw transferability was the strongest predictor of the Cognitive presence during the learning process.

The beneficial affordances from the implementation of “hybrid” course in OS grid have created the following functions:

• The avoidance of the primary "cognitive overload" that usually happens after the introduction of students in a plausibility illusion that OS grid depicts, through the assistance of the instructor
• The removal of any initial reactions, which are usually exemplified through the unnecessary and excessive use or navigation in the virtual environment, without the necessary feedback.

Furthermore, in terms of linking the technological infrastructure of open source virtual worlds and with connectedness of the Cognitive presence added values that focus on computer-mediated learning procedure are:
• Enriching and exploiting visual artifacts, such sharp representation of learning spaces and opportunities to the students as cyber entities to deal with authentic contexts by using text or video files, simulations and visual artifacts.
• Increasing the options for greater quality and quantity of innovative dimensional interaction in a learning environment, as students started to become “seekers of knowledge”.

Future-driven studies may enhance the value-added of virtual worlds and should promote the educational expectations for spatial and temporal flexibility in conjunction with 2D LMS.

References


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