Interaction analysis to design distributed learning environment

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Abstract

This article describes the Case Studies (CS) and Problem-Based Learning (PBL) approaches in multicultural learning contexts. The conceptual model presented here exposes and discusses about the importance of representing and expressing practical concerns, when teachers attempt to adopt constructivist approach. Within this conceptual model, the juxtaposition of two systems, learner system and designer/teacher system are discussed. The framework represented by the conceptual model is used to express and direct some recommendations for design and to emphasize on the relationship between technological effects and benefits, and the interaction as a space of expression and dynamic of exchange.

1. Introduction

Constructivist approaches such as Cases Studies (CS) and Problem-Based Learning (PBL) provide opportunities to cater for diversity in distributed learning environment. However, adopting these approaches in multicultural learning environments is difficult to implement due to the complexity of the interaction generated by e-learning technology, and due to the diversity of learner manifestations in terms of values, references, contexts, cultural symbols, and personal experiences. Teachers are actors of two distinct but interrelated systems. These systems are: the educational ideologies and the complex societal and technological evolution, that is, the context wherein the education takes place. The situation is further complicated in teacher education programs where teacher educators are training student-teachers to prepare the student-teachers to teach next generation of learners. Without a minimum of awareness about elements associated to the meaning of interaction, how intercultural interaction may be fostered or disabled in the context of diversity, how to exploit interaction to bring higher and deeper interactive reflection, and so on. Teachers are unable to take the advantages of the present day technologies to enrich students’ educational experience. To act as an change agent, teachers should acquire educational designing skills that are not limited to design or use today’s technology-based learning but mainly to reflect on emergent concerns and invent new way of managing and scaffolding learning process within distributed and mediated classrooms.

As in pure sciences, it is time for the field of education to really discover the potential of modeling as way of expressing situation, way of establishing common language and first step to rationalize the pedagogical intervention within complex system.

Today’s teachers spend more time in interacting with students more than ever before, particularly if PBL, CS approaches are implemented in an online environment where teacher’s action is influenced by a multi-domain environment:

- 1- domain of practice where teachers are involving in professional experimentation,
- 2- personal domain where teachers’ actions are embedded in personal knowledge, beliefs, and attitude,
- 3- external domain that is source of information or stimulus and,
- 4- domain of consequence where teachers face the salient outcomes of their action.

We have been working in the area of interaction analysis to foster higher order thinking in a distributed environment for quite sometime now [1],[2].

2. Conceptual model for meaningful interactions

The conceptual model discusses the importance of representing and expressing genuine practical concerns when teachers adopt a constructivist teaching approach. Within this conceptual model, the
The juxtaposition of the learner system and the designer/teacher system are analyzed in relation to the different dimensions of interaction. The framework represented by the conceptual model is used to offer recommendations for design as well as to emphasize the relationship between the effects and benefits of technology.

### 2.1. Interaction dynamics

The most important dimension of learning in a multicultural context is the ability and learner's skills to deconstruct and reconstruct his/her values and to relive and his/her experiences, so become able to make sense of roles and relationships surrounding each knowledge or beliefs [3].

### 2.2. Sociocognitive and metacognitive interaction process

Development of e-learning technologies provided us with shared learning spaces where peoples from different background, different cultures, different interests, different personal experience, etc. can interact and learn from each other in a distributed learning environment. But these factors creates complex dynamics of social and cultural context, that in absence of higher order cognitive and sociocognitive competencies from the learners, and a profound consideration of pedagogical design from the designer, these contexts possibly generate more new concerns than newer learning outcomes.

The reflective, critical and argumentative thinking were, since so far considered by all the researchers as higher level of reasoning, difficult to achieve but important to attend [4]. Designer will be shortly challenged to create distributed learning environments which will allow learners to develop learning skills to work with diversity of people and improve intellectual reasoning.

### 2.3. Knowledge and thinking interaction

How we define knowledge determine how we apprehend learning and how thinking consequently models and shapes the knowledge. The knowledge as a relationship and an interpretation [5] underlines the importance of the interaction process, the dynamic of meaning sharing and meaning negotiation. However, few efforts in design are made to take into account these aspects when people are in interaction.

### 3. Conclusions

How many teachers and students are aware about the cultural scripts that they are expressing or imposing to the others participant during interaction[3] For many years, we disregard the environment as a complex interaction space and, a series of relationships between things, things and people, and people and people [6]. The learning environment design should involve not only the physical or technical aspects rather in addition it should include social and cultural aspects too. It is the last one that is hard to diagnose and to exploit cognitively and metacognitively, because it is embedded in more subjective behaviors and implicit actions. This is the teachers’ and educators' challenge: to use culture as ingredient and tools, and affordance for personal development and growth. The benefit of any instructional and interactive environment depends on how the quality of the system interactivity enriches and exploits the generated interaction among actors (students and teachers).

### 4. References


