Chapter 2.2
Bringing Reality into the Classroom

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ABSTRACT

Researchers and practitioners have been advocating that the nature of learning is contextually situated, and that this should be reflected in the development of learning experiences designed to acquire knowledge. However, learning experiences are still being developed as mere one-dimensional processes aimed to move, from the teacher into the student, pure autonomous pieces of content that are stripped from all their contextual and cultural information. The purpose of this manuscript is to propose a methodology to allow instructional designers and teachers to encompass the complexities of reality so that they can bring it pedagogically into their classrooms to build meaningful authentic learning experiences. This methodology permits students to first engage in problem solving activities and then present their solutions using a computer application as a cognitive tool. The chapter discusses literature related with the development of situated learning environments, proposes a methodology for facilitating context-dependent knowledge building, and describes a case where the methodology was used and evaluated.

INTRODUCTION

For more than a decade, researchers and practitioners have been advocating that the nature of learning is contextually situated, and that this should be reflected in the development of learning experiences designed to acquire knowledge. However, in spite of all the evidence gathered so far about the importance of understanding the process of human learning as intrinsically linked to context

and culture (Brown, Collins, & Duguid, 1989) and indistinct from acting (Maturana & Varela, 1998), learning experiences are still being developed as mere one-dimensional processes aimed to move, from the teacher into the student, pure autonomous pieces of content that are stripped from all their contextual and cultural information.

According to the constructivist perspective, this linear, cause-and-effect understanding of the learning process is used because knowledge, the product of learning, is wrongly conceptualized as an object that can be transferred from some form of repository to a human mind. Thus, knowledge is confounded with information and content. Moreover, information and content are also incorrectly understood as being independent of the contexts and cultures in which they were developed and used. Consequently, human knowing and learning are equated with the basic acts of being exposed to, and storing, independent entities of information and content.
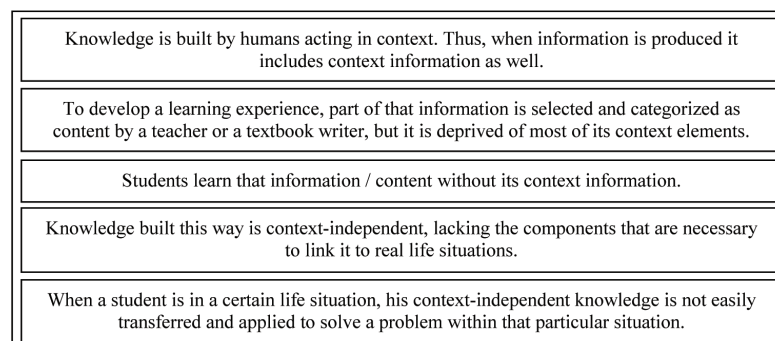
The consequence of educating students this way is that they end up with rather big amounts of inert decontextualized knowledge, which they do not know what to do with, besides using it to move forward in the school system that has given them this kind of knowledge. During their school years, basic education learners memorize content as if they did not have to do anything with it besides answering a test. They, more or less, accept as an act of faith their teachers' promise about the possible future transfer of that knowledge to their "real life." Nevertheless, in higher education, students that are finishing their degrees always worry about not having cleared the relationship between what they learned and the practical nature of their upcoming jobs. In general, it can be said that students do not relate what they learn to the contexts and cultures where they are supposed to use that knowledge because it is context-independent and lacks the components that are necessary to link it to real life situations (See Figure 1); they only relate what they are learning to the very school's traditional didactic culture (Brown et al., 1989). In a few words, students receive, memorize, repeat, move to the next grade, and forget.

Some causes that could explain why educational institutions remain in the didactic teaching and learning paradigm are:

1. Accepting the constructivist notion that knowledge, learning, and content do not exist in a vacuum and that they are always context related entails profound changes to the school as a whole because, in essence, this posture represents a new paradigm. In consequence, it "…requires more of a paradigm shift in educational practice than most institutions are ready to accommodate." (Jonassen & Carr, 2000, p. 166). It is not just a matter of using a new group of teaching strategies, it means innovating in several of the schools'

Figure 1. Knowledge is built as context-independent

Knowledge is built by humans acting in context. Thus, when information is produced it includes context information as well.
To develop a learning experience, part of that information is selected and categorized as content by a teacher or a textbook writer, but it is deprived of most of its context elements.
Students learn that information / content without its context information.
Knowledge built this way is context-independent, lacking the components that are necessary to link it to real life situations.
When a student is in a certain life situation, his context-independent knowledge is not easily transferred and applied to solve a problem within that particular situation.

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