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Analyzing collaborative interactions: divergence, shared understanding and construction of knowledge

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Abstract

One of the most important facets of collaborative learning is the interaction between individual and collaborative learning activities – between divergent perspectives and shared knowledge building. Individuals bring divergent ideas into a collaborative environment. While individuals bring their own unique knowledge and perspectives, the second important aspect of collaborative learning is how they move from seemingly divergent perspectives to collaborative knowledge building. This is clearly a social process among group members who could adopt various strategies for resolving differences including asserting dominance, acquiescing, or some form of reciprocal sense making. An important aspect of collaborative learning is the move from assimilation to construction, i.e., creating new understandings based on the discussions that they have had. Documenting this change from divergence to collaborative knowledge building to possible construction is therefore important in understanding the nature the collaborative interactions. In this paper we discuss our analysis of the process of collaborative interactions based on three dimensions – divergence of ideas, collaborative knowledge building and construction. Our aim was to document as well as to understand how collaborative interactions develop over time: whether students raise new issues (ideas) more frequently as they become more familiar with the discussion and discussants, and whether shared knowledge building becomes richer over time, and subsequent evidence that students were able to construct their own understanding based on their interactions with others. Our analyses were conducted in the context of an online graduate course conducted using the learning environment that we designed, CoDE, (Constructivist, Distributed learning Environment). In this paper, we will first describe the design of CoDE. We will then describe a study in which CoDE was used to offer an online graduate course in learning theories. We then

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discuss our analyses of both individual and collaborative learning as it progressed through the duration of the course.

Keywords: CSCL; Shared understanding; Divergence; Collaborative interactions

1. Introduction

In recent years several approaches have been put forth to document interactions in a collaborative environment. Researchers have analyzed thread lengths and interaction patterns (Hewitt & Teplovs, 1999) as well as learning outcomes. Guzdial (1997) presented an information ecology perspective of collaborative interactions describing the flow and use of information, analyzing the notes written, notes read and the thread lengths in two CSCL tools. Analysis based on several categories of collaborative knowledge building such as idea diversity, improvable ideas, etc., (Law & Wong, 2003), and social network analyses (Nurmela, Palonen, Lehtinen, & Hakkarainen, 2003) have provided insights into how collaborative learning develops over time.

Perhaps one of the most important facets of collaborative learning is the interaction between individual and collaborative learning activities – between divergent perspectives and shared knowledge building. Individuals bring divergent ideas into a collaborative environment. Divergence of ideas has been identified as having a significant impact on collaborative interactions (Hoadley & Enyedy, 1999; Stahl, 2002). While individuals bring their own unique knowledge and perspectives, the second important aspect of collaborative learning is how they move from seemingly divergent perspectives to collaborative knowledge building. This is clearly a social process among group members who could adopt various strategies for resolving differences including asserting dominance, acquiescing, or some form of reciprocal sense making. Thus a student coming to a discussion with her own understanding of the domain might take away a deeper or a broader comprehension of the topic, and apply it in other situations. An important aspect of collaborative learning, according to Schwartz (1999), is the move from assimilation to construction, i.e., creating new understandings based on the discussions that they have had. Documenting this change from divergence to collaborative knowledge building to possible construction is therefore important in understanding the nature the collaborative interactions.

In this paper, we discuss our analysis of the process of collaborative interactions based on three dimensions – divergence of ideas, collaborative knowledge building and construction. Our aim was to document as well as to understand how collaborative interactions develop over time: whether students raise new issues (ideas) more frequently as they become more familiar with the discussion and discussants, and whether shared knowledge building becomes richer over time, and subsequent evidence that students were able to construct their own understanding based on their interactions with others. Our analyses were conducted in the context of an online graduate course in which students were provided with tools for individual reflection as well as collaborative discussions. The course was based on a problem-based constructivist approach. We designed the learning environment, CoDE, (Constructivist, Distributed learning