Chapter 13
Deciphering Conflicts of Affordances Through a Design-Based Approach

Phil Tietjen
Pennsylvania State University, USA

Mahir Akgun
Pennsylvania State University, USA

ABSTRACT

This study explored the potential of "Social Web" tools (e.g., "Web 2.0") to support teaching and learning in an online Information Science & Technology course. Although there has been significant optimism regarding the potential of Social Web tools to promote effective collaboration in learning environments, instructors have found this to be an elusive goal. This paper investigates learning and usability challenges that arose with using multiple social media tools to support collaborative learning. Applying a Design-Based Research, the study conducts a close analysis of class discourse and interactions across a blogging and social networking platform. Findings showed that students used the tools primarily for logistical communication rather than learning-oriented communication. The researchers theorize that the specific affordances of the tools to support collaborative learning may be insufficiently articulated and difficult for students to discern their relative strengths - a "conflict of affordances."

INTRODUCTION

Interest in exploring the potential of "Social Web" tools (e.g., "Web 2.0") to support teaching and learning has generated a promising foundation of research. Most prominently, research has coalesced around tools such as wikis, blogs and social networking platforms. Classroom use of wikis has shown promise in promoting critical thinking (Kim, 2014) and peer assessment skills (De Wever, Van Keer, Schellens, & Valcke, 2011). Others have found blogs helpful in building digital literacy (Ananyeva, 2014). In the third key area, social networking platforms, researchers have observed how they can foster enhanced student engagement (Junco, Heiberger & Loken, 2010). Despite these inroads, the majority of these

studies have primarily focused on the integration of one or two social media tools (e.g., Web 2.0). Very few have investigated the challenges presented by integrating a broader range or combination of tools. We describe this challenge as a "conflict of affordances."

Web 2.0/Social Media in Learning Contexts

Many educational researchers recognize the potential for Social Media or Web 2.0 tools to support collaborative learning; however, a growing number of studies have shown that there is a significant gap between students' general familiarity with these tools (e.g., for personal and recreational use) versus using them strategically to support learning goals (Bennett, Bishop, Dalgarno, Waycott, & Kennedy, 2012; Ertmer, Newby, Liu, Tomory, Yu, & Lee, 2011). Ertmer et al. (2011) examined students' confidence and value of Web 2.0 tools, and found that successful use was closely related to value they expected to realize in achieving course-related goals. Bennett et al. (2012) found that while students actively participated in the various activities that incorporated Web 2.0 tools, they nevertheless found them to offer little benefit with succeeding on the weightier assignments in the course. In a similar vein, Hsu, Ching, and Grabowski (2009) identified two areas where Web 2.0 practices have not been fully realized, namely, (1) collaborative "… knowledge construction and meaning negotiation" and (2) practices that facilitate building shared goals (p. 753). Exploring the potential of social web technologies to reduce social distance in online courses, Poellhuber, Anderson, Racette, and Upton (2013) found that expectations concerning the quality of collaborative interactions were shaped by differences in gender and age. Kim (2014) explored the potential for wikis to foster critical thinking skills. Despite the common belief of students' proficiency with social media tools, Kim found that students who were exposed to more scaffolding demonstrated greater evidence of critical thinking skills.

Affordances

The concept of affordances has a rich history of research. Its roots can be traced back to James Gibson (1979) who conceptualized it as the possibilities that a material environment or object makes available for action. The relevance of affordances achieved wider recognition in the late 1980s and early 1990s when software became a more commonplace feature in industrial workplaces. In particular, researchers identified limitations in industrial software tools theoretically designed to promote collaboration among workers ("groupware") and proposed new designs that gave greater recognition to the role of affordances (Carroll, 1990, 1998; Gaver 1991, 1996).

More recently, the dramatic growth and proliferation of online learning has sparked a greater interest and need for software that supports collaborative learning. Similar to groupware designers, learning designers have also looked to improve the collaborative potential of digital tools through the prism of affordances. While Gibson's foundational work on affordances provides meaningful insights regarding the affordances of material objects in a physical environment, collaborative learning researchers such as Kirschner et al. (2004) argued that its overall value is limited when attempting to apply it to the design of digital learning environments. They further argued that learning designers in these environments face a different set of challenges. More specifically, in thinking about digital tools for supporting learning, they asserted that the task of analyzing affordances necessitates a broader and more holistic view that encompasses three different layers: the (1) affordances that are perceptible or perceived, (2) the con-

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