

Linked Reading and Writing Using Wikilinking: Promoting Knowledge Building within Technology-Enhanced Classroom Learning Communities

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Abstract: This poster describes and analyzes linked reading and writing through the use of Wikilinks to promote socio-constructivist learning within a technology-enhanced classroom learning community (TCLC). The course under research is a graduate course designed as a TCLC supported by a Wiki collaborative editing environment. We conduct a micro-analysis of data collected from the Wiki, classroom observations and interviews. We hope this study will contribute to understanding of knowledge building and design of future TCLCs.

Literature Review

Classroom learning communities (Bielaczyc & Collins, 1999) may be supported by various social technologies. One such technology is an online Wiki collaborative editing environment. We are interested in learning about the unique features of Wiki in supporting meaningful socio-constructivist learning, in particular, individual and shared knowledge construction using linked reading and writing. Earlier work describes and advocates the use of Wiki to support collaborative learning in graduate statistics courses (Ben-Zvi, 2007), and in a CSCL course named “Challenges and Approaches to Technology-Enhanced Teaching and Learning” (CATELT) (Hod & Ben-Zvi, 2013; Konja & Ben-Zvi, 2008). CATELT is a Wiki-based blended course as a part of the Educational Technologies Graduate Program at the University of Haifa, Israel. The course was originally enacted in 2006 and has been taking place annually since.

The same Wiki learning environment has been used across all course generations (with some modifications) thus enabling each generation to build upon and advance the shared knowledge of the technology-enhanced classroom learning community (TCLC). Students in CATELT are of differing levels of expertise, however, most are still novices with regards to CSCL and TCLCs. In this poster, we present the early stages of research based on the 2013 iteration of CATELT, focusing on how using links within a Wiki promotes socio-constructivist learning.

Learning and Knowledge Building

“Learning is an internal, unobservable process that results in changes of belief, attitude, or skill. Knowledge building, by contrast, results in the creation or modification of public knowledge—knowledge that lives ‘in the world’ and is available to be worked on and used by other people” (Scardamalia & Bereiter, 2003, p. 1372). Cress and Kimmerle (2008) have developed a model to build on this distinction of learning and knowledge building to better understand collaborative knowledge building with Wikis. Their model is based on Lunhmann’s systemic approach and Piaget’s theory of equilibrium. Knowledge building is described as the processes within the Wiki social system, the cognitive processes of the learners, and the interplay between them. Two processes of individual learning: internal assimilation and internal accommodation, and two processes of collaborative knowledge building: external assimilation and external accommodation. The cognitive and social systems develop mutually, resulting in collaborative knowledge building.

Linking and Learning

The constructivist paradigm sees learning as a process in which the learner is active in gathering and organizing information, processing it, connecting it to prior knowledge, providing interpretations and turning it from information to knowledge (Salomon, 2000). Information usually consists of distinct facts, concepts, ideas or procedures, and knowledge is seen as a web of connections between pieces of information. To engage in meaningful learning, a student must make links between pieces of information within one’s cognitive system.

Wiki, the web application, is also a web of connections between Wiki pages that are well interconnected by hyperlinks, and in this way represents the constructivist view of knowledge. Wikis use a simplified syntax for linking pages within Wiki environments, called “Wikilinks”, which is different from the syntax of external links, leading to web pages outside of the Wiki. When an internal Wikilink leads to a page that does not exist, it has a distinct visual appearance (e.g., red instead of blue). The Wiki promotes the creation of meaningful links between pages by making page link creation easy and intuitive. The Wiki also aims to involve the learner in an ongoing process of creation and collaboration that changes the website’s landscape (Leuf & Cunningham, 2001). These characteristics of Wiki make it a good choice as a learning platform in constructivist learning environments, such as TCLC’s.

In CATELT, learners are constantly engaged in creating new pages, improving existing pages, and adding links between pages. While doing so, the process of connection-making can become visible as they make these connections by adding Wikilinks. These Wikilinks are objects that can be reflected upon and used as a basis for deeper understanding. If we were to apply the model of Cress and Kimmerle (2008) to Wikilinking, then it can be viewed as an external process that can contribute directly to collaborative knowledge building. Similarly, browsing the Wiki can be viewed as an internal process of individual learning, which may indirectly contribute to knowledge building at a later stage, once learners externalize their new understandings.

Research Questions

Based on the literature review and our deepening understanding of students' Wikilinking in CATELT (see preliminary findings), we propose to further study connected reading and writing. In particular, we plan to study the connections between Wikilinking and knowledge building within CATELT. Our primary research question is: *How do students' linking practices develop within a Wiki collaborative editing environment?* We ask the following sub-questions to answer our main question:

- What are students' Wikilinking practices?
- What changes in Wikilinking practices do novices make as they gain expertise in a Wiki-based collaborative learning environment?
- What do learners' Wikilinks practices indicate about their knowledge-building?

Methodology

Data for this research is collected from classroom observations that are, video recorded, interviews with participants, and from students' activities on the online Wiki collaborative editing environment. The data is then analyzed using a microgenetic method to uncover processes and developments relevant to answering the research questions (Granott & Parziale, 2002).

Preliminary Findings

From analyzing initial data from CATELT 2013, a few interesting observations can be made about the way learners used hyperlinks. First, novice learners hardly created new hyperlinks when they created pages in the Wiki. Second, the links made were typically external and not Wikilinks. This fact may provide information about learners' epistemologies, such as whether they consider the source of knowledge to be external, or created within a learning community through extended iterative constructivist processes. Third, there was a noticeable difference between the novices and the more expert learners in the TCLC. The latter made extensive use of hyperlinks in their page, used mainly internal Wikilinks and even created new Wiki pages and linked to them.

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