

The Use of Wiki in a Knowledge Management Academic Course: A Qualitative Investigation

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Abstract

The current research aims to explore and analyze the application and use of a wiki, in a knowledge-management academic course. The research focused on the level of collaboration among students and on the kind of interaction that takes place during the learning process. The database on which this research focused was comprised of wiki pages which were gathered from a knowledge-management wiki course in Israel. To understand the comments directed at each student on the wiki, a thorough content analysis was conducted. The results of the current research reveal that the major part of the interaction that took place on the wiki centered on content-related comments and contained both collaboration among the students and use of deep levels of cognition.

Keywords: wiki, collaboration, interaction, web 2.0, knowledge-management.

Introduction

Many people talk about Web 2.0. What is this Web 2.0? Is it a revolutionary web? Is it another technology "bubble"? Is it hype? Many associate it with terms such as blogs, wikis, podcasts, RSS feeds, social web, and many others. They assert that Web 2.0 is a place where everyone can add or edit information, where digital tools allow users to create, change, and publish dynamic content (Stephens, 2006). The current research aims to explore and analyze the application and use of a wiki, which is a key concept of Web 2.0, in a knowledge-management academic course. The research will focus on the level of collaboration among students and on the kind of interaction that takes place during the learning process. The research findings are relevant for anyone who is interested in understanding the impact of implementation new technologies in educational settings.

Literature Review

Constructivism: Constructivism is based on the premise that knowledge is not simply absorbed or transferred by the individuals, but that individuals actively construct personally meaningful understandings as they interpret their experiences and ascribe meaning to them (Piaget 1963; Resnick 1981; Shuell 1986). There are several major principles common to most constructivism-based approaches to teaching and learning. The first one is that learning is an active process in which learners construct new ideas or concepts based upon their knowledge. (Harris & Alexander, 1998). The teacher's role is to assist performance and construction of knowledge rather than provide knowledge or information (Reid, 1993). The second principle that underlies constructivism is that constructivists perceive learning as a social activity (Brooks & Brooks, 1997).

Learning strategies: Deep and surface: Marton and Saljo (1976a; 1976b) distinguished between deep learning strategies and surface learning strategies. The distinction is based on the qualitative analysis they performed in order to define the differences in students' approaches to written texts. The *deep-learning strategy* is characterized by the ability to relate new information to previously acquired knowledge, to study different aspects of the material in order to obtain the entire picture, and to search for a relevant meaning and a connecting point between the learning material and daily life and personal experiences. The *surface-learning strategy* is characterized by a student's tendency to choose the quickest way to accomplish the task, to acquire the necessary information without asking in-depth questions, to study the material in a linear manner; to learn by rote by relying on memory and not on comprehension, and to be concerned with the time needed to fulfill the learning task (Biggs, 1993).

Collaborative Learning: The term CSCL (computer-supported collaborative learning) focuses on how technology can facilitate the sharing and creation of knowledge through peer interaction and group learning processes (Resta & Laferrière, 2006). The main aim of CSCL is to provide an environment that supports collaboration between students to enhance their learning processes (Kreijns, Kirschner, & Jochems, (2003), to facilitate collective learning (Pea, 1994), or group cognition (Stahl, 2006). The interest in CSCL reflects the emergence of new technological tools (Newman, Johnson, Webb & Cochrane, 1997), as well as the emergence of constructivist approaches to teaching and learning (Kirschner, Martens, & Strijbos, 2004), and the need to create more powerful learning environments (Oblinger & Oblinger, 2005).

Wiki: A *wiki* is a webpage that can be easily edited by anyone who is allowed to access it (Edersbach, Glaser, & Heigl, 2006). The first wiki was established in 1995 by Ward Cunningham whose idea was to provide a website where programmers could exchange information without waiting for the webmaster to update the site. The wiki is a collaborative tool that facilitates the production of a group work and a tool for building knowledge bases which are dynamic and fluid.

Several researchers assert that wiki technology can help some knowledge-management goals for collaborative work and organizational learning (Fuchs-Kittowsk & Köhler, 2002; Kille, 2006; Wagner, 2004; Wagner, Cheung, & Rachael, 2006). Leuf and Cunningham (2001) suggest that wikis can support discussion during the process of creating and sharing knowledge, and also the delivery of class curriculum and projects. Wiki clones can support searching and indexing for effective retrieval and storage of presentations (Raman, 2006). Raman, Rayn, and Olfman (2005) have conducted a research which examined the use of wiki in facilitating a knowledge-management class in an academic setting. They conclude that wiki enables students and instructors to be in a continuous discussion, and that the wiki can be used as a knowledge repository. Furthermore, they suggest that wikis can support collaborative knowledge creation and sharing in an academic environment. However, success depends on certain variables – familiarity with wiki technology, careful planning for implementation and use, appropriate class size, and motivation of students to engage in discovery learning. The present research also explores the use and applications of wiki in an academic environment in a knowledge-management course, while focusing on the level of collaboration among students and on the kind of interactions which take place during the learning process. The following questions guided the design and the analysis of this study: What was the level of collaboration among students who participated in the wiki creation and what kind of interaction took place on the wiki? Was it a social, courteous interaction that supported the process of learning, or was it content related, collaborative, and deep, one which contributed substantially to the learning process itself?

Method

The database on which this research focused was comprised of wiki pages which were gathered from a knowledge-management wiki course in Israel. The course included 19 undergraduate second-year students who participated in an information-management academic program in the Library and Information Science Department. Knowledge management is a required course for second-year students. To understand the comments directed at each student on the wiki, a thorough content analysis was conducted. Each message was divided into units of meaning which compromise the units of analysis. A *unit of meaning* can be a phrase, a sentence or some sentences which convey one message.

Findings

The researcher found 247 messages on the wiki (in the discussion section), of which she analyzed 677 units of analysis. Fifteen categories were defined, which allowed the researcher to classify the appearance of the discussion in an unambiguous manner. For the sake of the analysis, the categories were combined and grouped into four broad categories (Table 1). The breakdown of the four broad categories into fifteen categories and their descriptions appear in Table 2.

Table 1. The four broad categories of the discussion section

Broad Category	Number of Units of Analysis	%
1. Courtesy	121	17.9%
2. Instructor's comments	153	22.6%
3. Students' constructive comments	191	28.2%
4. Students' response to their classmates	212	31.3%

Table 2. The breakdown of the broad categories into sub-categories

Broad Category	Sub-category	#	%
1. Courtesy		121	100%
2. Instructor's comments		153	100%
	Supportive comments	32	21%
	Style and bibliography	52	34%
	Substantive comments	69	45%
3. Students' constructive comments		191	100%
	Structure and bibliography comments	26	13.6 %
	Clarification	31	16.2 %
	Expanding the assignment	37	19.4%
	Deep comments	97	50.8%
4. Students' responses to their classmates		212	100%
	Communication with the instructor	17	8 %
	Emotional reaction	18	8%
	Technical and structural comments	19	9%
	Appreciation	31	14.6%
	Direct response to other students' comments	47	22.2 %
	Substantive deep comments	80	38%

Discussion

The main questions, which underlined the design and the analysis of this study, addressed the level of collaboration among students who participated in the wiki creation and the kind of interaction that took place on the discussion section of the wiki. Analyzing the content of the categories reveals that the discussion section of the wiki encompasses both content-related (collaborative, deep) comments and courteous, social comments. But, it should be noted that the major part of the discussion centered on comments that were content related and contained both collaboration among the students and use of deep levels of cognition. This finding is interesting and encouraging, as it reflects the profound levels of discussion and interaction, which may take place on the wiki. Based on the encouraging findings of the current research, the researcher recommends expanding the use of wiki in more different academic learning contexts, as it fosters both collaboration among learners and deep learning.

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