
Preparing Wikis for Educational Settings: The Role of Discussion Board Use in Wiki-based Writing

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Abstract

Using wikis for educational purposes has become a common activity in learning contexts. Despite its frequent use for learning, we still know little about the demands of wiki-based writing taking into account novice writers' needs. In this paper we describe a study in which we investigate whether a communication facility in form of a structured discussion board, results in more active writing, particularly adding and revising text. Students from two university courses participated in a three week writing activity either in a Discussion+ condition in which a discussion board was available or in a Discussion- condition with no discussion board available. Results show that the availability of a discussion board alone does not help learners to overcome their hesitation to add text-sections or revise text of others. However, further analysis showed that students who did use the discussion board also contributed more to the wiki-text. Findings suggest that increased demands exist in wiki-based writing and that additional support is needed for learners to succeed in wiki-based writing.

Author Keywords

CSCL; Wikis; revision; collaborative writing

ACM Classification Keywords

Experimentation

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WikiSym '12, Aug 27–29, 2012, Linz, Austria.
ACM 978-1-4503-1605-7/12/08.

Introduction

Collaborative writing has become a common activity in higher education and it is now a major ingredient of many Master Program requirements (e.g. Utrecht University, Uulu University, University of Helsinki). Collaborative writing technology such as wikis are frequently being used particularly in blended or distant learning settings in higher education. In wiki-based writing, several users can collaborate as authors by remotely accessing and editing the same wiki-text. Furthermore, versioning capabilities as well as communication facilities are available for article discussions. Accessing the same text makes it, easier to collaborate. In contrast to single-based writing, it requires learners to add text-sections independently to the shared text and to revise text sections authored by others in order to create a coherent text. Both, adding text sections and revising text sections are activities that student learners tend to avoid. Hence, the question is: how can wikis be adapted to enable students to become active writers? There is an increasing interest to adopt available collaborative writing technology in a way that it helps to prepare learners to become active collaborators in writing. Recent efforts in wiki development have complied with this interest to establish wikis for educational use. Extensions and add-ons that prepare wikis for educational settings are available. Only recently there is an increasing effort to evaluate using wikis for educational purposes. The focus of this paper is to systematically investigate whether the availability of a communication facility that allows leading structured discussions during the writing activity, helps students to more active, overcoming their hesitation to add and to revise text.

Background

Wiki-based Writing

As a starting point for characterizing wiki-based writing activities, we use the revised single-writing model by Hayes and Flower [3]: planning-drafting-reviewing. In wiki-based writing, planning and drafting may take place individually whereas reviewing includes individual and collaborative activities. Evaluation and revision can take place throughout the wiki-writing, but particularly: after drafting own chunks of text, after reading text sections of others and after re-reading the shared wiki document. Wiki-based writing creates opportunities for learners to make decisions regarding the writing situation. However, taking advantage of collaboration opportunities is difficult especially novice writers. A common problem is that students avoid adding text sections. Students tend to hesitate to become active contributors hoping that someone else will contribute. Especially revising text sections of others is an activity that students hesitate to do. Students' hesitation to add and revise text has already been identified as a common problem in wiki-based writing. The question of concern is: What are the reasons that students hesitate to add text and to revise and how can students overcome the hesitation to add sections and to revise existing text sections?

Discussion during Wiki-based Writing

One reason why students hesitate to add text sections to the shared document or to revise might be missing opportunities to communicate with the co-authors. Offering a discussion facility while collaboratively writing on a shared document, might enable learners to overcome their hesitation to add text and even more, to encourage them to rewrite paragraphs of peers. On

the one hand, opportunity to discuss the writing process might lead to a higher amount of text and revision activities. On the other hand, it is also possible that effort is taken away from the main task that is improving the shared document. The goal of the following study was to investigate conditions for using wikis for wiki-based writing in educational settings. Based on evidence that learners hesitate to add individual text sections and that they tend to engage in little revision activities while working with co-authors on a shared document, we argue that offering a possibility for structured communication using a discussion board, might help students to overcome this problem. We are interested whether availability of a discussion board affects the amount of text that students add during article writing.

Study

Participants and Design

Thirty nine students of two courses A (n=20) and B (n=19) in computer-based learning were participating in the study. For the study, students were working in groups of three on one wiki-article. The study consisted of two conditions (Table 1): Wiki+Discussion (Discussion+) and Wiki Only (Discussion-).

Condition	Access		
Discussion +	Wiki-Article	Versioning	Discussion Board LiquidThread
Discussion -	Wiki-Article	Versioning	

Table 1. Study Conditions

Wiki-Software

For the study, the MediaWiki functionality [1] that is usually offered was reduced to serve educational purposes. Since for educational purposes, talk pages are insufficient because they provide little means to structure a discussion, an extension called LiquidThreads [2] was included. It is a threaded discussion board, which replaces the talk pages. Both conditions had access to MediaWiki's versioning feature in which individual changes on the document can be observed.

Results

Each participating student contributed on average 5025 characters to the article and 548 characters to the discussion board. Every article included on average 13158 characters (including spaces). One person used the discussion board heavily but no one answered. This person was taken out in the calculations, resulting in n=38. Students attitudes towards computers were similar between conditions (Discussion+: M = 2.76, SD = .45; Discussion-: M = 2.75, SD = .37). We compared the amount of characters between conditions. ANOVA revealed that there is no significant difference ($p=.743$) between conditions depending on discussion board availability. Next, we investigated whether the discussion board was used as intended in the discussion+ group. A treatment check showed that from the discussion+ group, 12 out of 27 students did not use the discussion board at all (while still contributing to the article), resulting in a post-hoc distinction between three groups: 1. the *Discussion+* group, which had the discussion board available and used it, 2. The *Discussion+-* group, which had the discussion board available but did not use it,

3. *Discussion-* group, which had no discussion board available (Table 2).

Groups	Discussion Board			Article Contribution	
	Avail-ability	Use	N	Mean	Std. Dev.
Discussion +	yes	yes	14	5088	2942
Discussion +/-	yes	no	13	3654	3564
Discussion -	no	no	11	6564	5524
	Total		38	5025	4095

Table 2. Contributions to the Article

Regarding the question whether discussion board use affects students' behavior while writing the article, we compared the amount of characters between the groups. Descriptives show that students in the *Discussion+/-* group contributed less to the article than the other groups (the *Discussion+* and the *Discussion-* group). However Kruskal-Wallis test showed that this difference was not significant. This finding indicates that engaging in discussions did not have detrimental effects on the amount of article contribution. When solely looking at the students who used the discussion board (*Discussion+* group), we found that there is a relationship between amount of discussion contribution and amount of article contribution (Spearman=.78, $p=.001$). Hence, if a student wrote in the discussion board, he or she also contributed to the article. An analysis of the students' contributions to the article

revealed that students added sections to the wiki, but they rarely rewrote sections of others. Eleven out of 39 students rewrote sections of others. From those 11 students the frequency of revisions was low. If students rewrote sections of others, they only did it once or twice.

Conclusion

Taken together, the results of the study indicate that the availability of a discussion board is not sufficient to help students to contribute more to a wiki and to increase their revisions of existing text sections. Additional support is needed to encourage learners to take advantage of communication tools leading to increased writing activity. This is an important finding, because before writing can be improved in terms of text quality, it first needs to be ensured that students write at all.

References

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