

Learning News Writing Using Emergent Collaborative Writing Technology Wiki

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Abstract. There is always a call for studies on blended media, which is one of the effective or pragmatic approaches to be used in particular instructional contexts. In the learning of writing, a review of prior studies suggest that revision as one of the key process to quality writing. However, current approaches do not provide relevant processing capability to such an area. Until recently, Wikis have been an emergent technology to effectively capture collective intelligence of individual users through writing, for example, as shown in the successful case of Wikipedia. In turn, this study attempted to explore if Wikis technology would mediate individual learning experience, in particular, in the process of journalistic writing. In a field study of a student-written Wiki developed by student journalists for an online shared resources of original news reporting, to complement traditional classroom teaching, it was found that quality of student written work was significantly correlated to revision behavior, supported to prior claims. Three modes of implementation strategies were suggested in order to boost learners' motivation to make relevant and quality revision to their work.

Keywords: Wiki, Writing Processes, Pedadgogy, Instructional Design

1. Introduction

In many disciplines, educational practitioners have always been finding ways on how to motivate students to write more and to write better. Although many approaches, including most e-learning systems, have been proposed to support teaching and learning, they do not change much from the instructor lead design. Systems are basically designed for course management (e.g., list of enrolment details), one-way delivery of learning material (e.g., downloading of presentations), or dissemination of information (e.g., announcement or calendar). On the other hand, two-way interaction communication tools, such as chat room or discussion forums, are always low in usage; even with administrative interventions (e.g., giving scores for participation). It is wonder if these tools could help provide a better learning experience for the learners. Current approaches ignore the importance of learners' participation in the

learning process. Although they do achieve some promising results, instructors find they spend too much time and effort to manage a course while student learners only come to download required files. The use of these approaches need more pedagogical guidance before satisfactory results will be achieved. Most importantly, these current approaches are irrelevant to the pedagogical issues in writing.

Recently, we have found that the emergent technology Wiki, which has a unique feature to collaborative writing and community building, is worth more study to investigate its potential to complement teaching and learning. Wiki is defined and described as “*a type of website that allows users to add, remove, or otherwise edit and change all content very quickly and easily.*”([1]). A Wiki is basically a set of linked web pages designed as an online database, created through the incremental development by a group of collaborating users, and Wiki is also the software in itself used to manage the set of all the web pages created ([2]). Wikis provide a fast, permanent and searchable platform for knowledge record that facilitates end-users management by them. Wikis provides knowledge at a centralized access point while decentralizes the knowledge production process to all users located far apart.

Would the employment of Wikis provide learners with a new learning experience during the learning writing process?

Therefore, the objective of this paper is to explore Wikis as a learning medium to learning writing, in the context of news writing. The arrangement of the paper is as follows: In Section 2, we review the effects of learning with media. In Section 3, we review the news writing processes. In Section 4, we evaluate the pedagogical relevance of Wikis in learning writing. In Section 5, we suggest a model framework to investigate the effects of Wikis as a learning medium towards learning news writing. Then, we present the method we use in this study. The analysis of the empirical result findings are shown in Section 7. Discussions are presented in Section 8.

2. Learning with Media

The key to use media in learning is “to focus on the pedagogical potential of the media to enhance broader learning and teaching aims”, rather than using it to develop a limited range of skills [3]. Supported by other empirical studies (e.g., [4]), media is as separate or as “add-on” in schooling in recent years. The increase of quantity of media use in the classroom in the absence of effective pedagogies is not well embedded in the curriculum. In a review of learning with media, Kozma ([5]) distinguished media by cognitively relevant characteristics of their technologies, symbol systems and processing capabilities (p.180). However, the most obvious characteristic of a medium is its “*technology and the primary effect of a medium’s technology is to enable and constrain its other two capabilities: the symbol systems it can employ and the process that can be performed with it*” (p.181). As media characteristics, and the instructional design that employed them, interacted with learner and task characteristics, they influenced the structure of mental representations and cognitive processes. Therefore, to assess the main effect of the medium, learner and task should be fixed. Or else, the medium might have different effects on

different learners, or different tasks characteristics. Specifically, media characteristics affected the structure, formation, and modification of learners' mental models (see Figure 1).

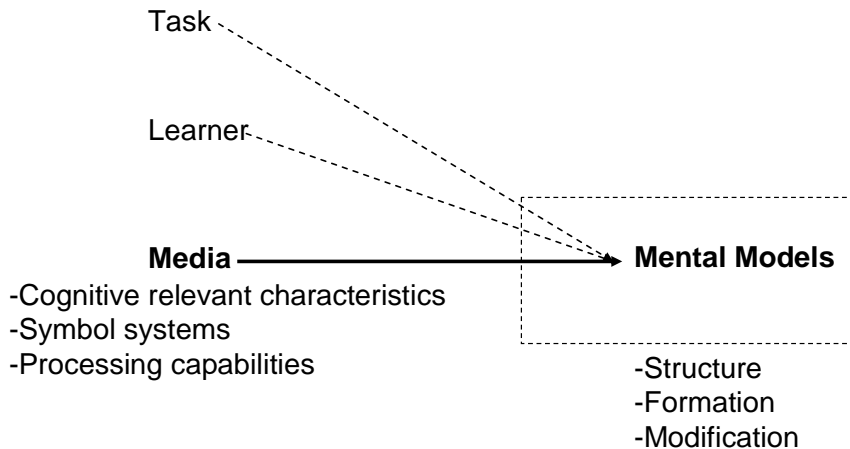


Figure 1. Effects of Learning Media on Mental Models

3. Journalistic Writing and the Importance of Revising

Specifically, in journalistic writing, Ward ([6]) suggests several generic steps, including: (1) To identify and find news and/or information which will attract and interest the key audience/readers; (2) To collect all the materials needed to tell the story/provide the information; (3) To select from the collection the best material; and (4) To present that material as effectively as possible (p.30). Blundell ([7]) also pointed out some similar steps in featured story writing, including gathering relevant raw material, refining the main theme, shaping and advancing story ideas, keeping related material together, and handling key story elements. They show that journalistic writing has its own generally accepted procedures, which needs to be observed and adopted, while not like those leisure writing.

Writing quality emphasizes on purpose, focus, information, and structure ([8]). To improve quality of writing, prior studies of writing instruction recommended process writing as an instructional intervention, where text can be developed through planning, drafting and revising in form of a problem solving processes (e.g., [9]). Revising is a core process in writing and has been a concern in many prior studies. For example, Pogner ([10]) studied the text production processes including text production (drafting a document), feedback (reader commentary) and revision (revising the text) from a socio-cognitive approach where peer interactions in the social context affect the text production processes in the discourse community of engineering. That is, revising may not only a cognitive process of the author, but also a social process involving the interactions from the peers or readers. Moreover, to

examine an effective model in writing, Roundy and Thralls ([11]) suggested writing to include two sections: section one encourages reflection on all aspects of the message, leading revision while section two informs error-analysis and further revision. Therefore, revision is suggested again, as the key to effective writing.

To further understand best practices in writing, Halpern ([12]) employs an informal survey of 125 writers in business, industry and government and identifies six key processes: invention (to generate ideas and information for any assignments), adaptation for audience (to adapt the writing for different audiences), clarification of purpose (to clarify purpose of the writing), organization (to organize the material effectively), control of voice or persona (to control the tone or voice of the communication), and polishing (to polish the drafts of different forms). Polishing here does not only refer to the use of better language, but also may include the revision of any of the previous steps in purpose, organization, tone, etc. On the other hand, it is also important to be informed on how to make revision, for example, through enough feedback. Empirical studies found that providing feedback constitutes an integral part of the learning process in writing (e.g., [13]) and suggested that low learners were those who did not receive any teacher feedback and felt general uncertainty in their work.

4. Wikis and Their Relevance to Pedagogy

What are Wikis? How are they relevant to improving journalistic writing?

Wikis, hence, have the unique design features that complement traditional teaching on the writing processes:

- (1.) *Learner-centre system design*: Unlike most e-learning systems that instructors are the only persons to delivery teaching material, Wikis allow all users to add content;
- (2.) *Facilitating the drafting process*: Wikis require only Internet connection and a browser, no additional applications are required. Wikis adopt only very simple and limited (mundane design principle) tag language to make adding Wiki pages an efficient process;
- (3.) *A complete support to revision in the writing process*: The core concept of Wikis is to encourage users adding content while enriching the content in the long run (organic design principle). Wikis allow anyone to edit (revise) any pages without restriction (flat structure design principle). Wikis record down all the edits so that anyone can check for prior changes in order to further improving the content (open design principle).

Meeks ([14]) referred to pedagogy as, “the ways in which an instructor designs the material and social aspects that she, her students, and their tools inhibit as they accomplish a curriculum” (p.1). In the particular context of journalistic writing, Wikis seems very relevant to complement traditional teaching. It is therefore worthwhile to further study the medium to find out the most effective way of use of the medium to support teaching and learning.

In fact, the media industry is one of the first disciplines to grasp the full potential of Wikis. Former reporter has implemented Wikis since 2004 for a social networking

web site to allow its users to submit, choose and rank content on news stories (www.digg.com) ([15]). Wikis have also helped collected a multi-layered body of knowledge and linked together disparate bits of information in one place, in an example of advertising application ([16]). Examples show that news reporting could be an appropriate application and promising area of implementing Wikis to manage the relevant knowledge ([17]), for example, Wikinews (<http://www.wikinews.org>) and USC Online Journalism Review Wikis (<http://www.ojr.org/ojr/wiki/>). Wikis have been found employed in a number of mainstream media news sites, for example, Los Angeles Times and its Wikitorial – invite visitors to rewrite the newspaper’s editorials using Wikis.

5. Model Framework and Hypotheses Development

We suggest a model framework to investigate the effects of Wikis as a learning medium towards learning writing, specifically in the context of news writing (see Figure 2).

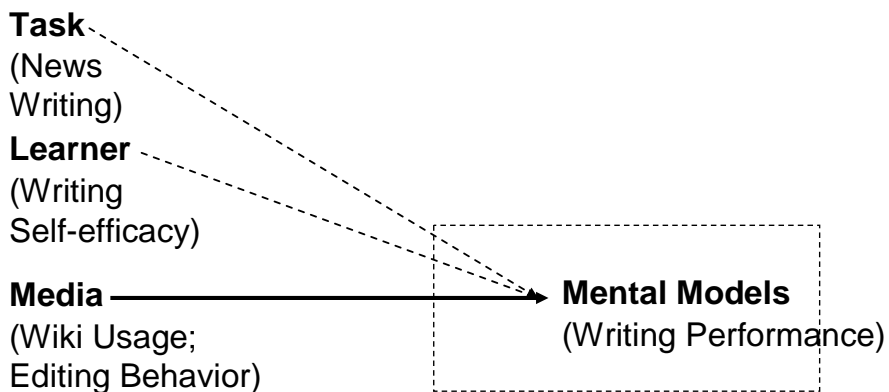


Figure 2. Model Framework of Writing Performance Mediated by Wikis

According to Kozma’s review on learning with media, task, learner, and the medium are the three core factors affecting the formation, structure and modification of learners’ mental models. Here in this study, we define our learning task as news writing. Hence, it is the same for all learners in the study. Moreover, we measure the writing performance as a proxy for the learning effects on learners’ mental models.

For the learners, they may have different background, domain knowledge and confidence that may affect their final performance (e.g., [18], [19], [20]). In news reporting process, it involves the interview of eyewitnesses, the collection of background information, the selection and organization of evidence and material, the drafting of the news reporting, and the editorial review on the accuracy, reliability and completeness of the news story. In this complicated journalistic process, it is expected

that the one with a *higher* self-confidence in writing may have a higher chance to accept the task as a challenge and to complete the difficult task with determination. On the other hand, the one with a lower self-confidence in writing may more hesitate to accept even an ordinary writing task. They will try to avoid the problem, not to face the problem directly, spend less time on the task, finally, may not be able to complete the task. Even if they complete the task, the quality of work does not truly reflect their competence in the area. Therefore, we postulate,

H1: Individual learner's writing self-efficacy would have a direct and positive relationship to his or her writing performance.

Revision has been suggested to be an important step in the writing process. In view of the journalistic process, including interview eyewitnesses, collecting background information, organizing key story elements, etc., journalistic writing is no easy task. It is logical to expect that a piece of quality news reporting cannot be made at the first time. It probably requires many more rounds of revision to finally achieve the reporting goals. It is therefore,

H2: Individual learner's revision behaviour would have a direct and positive relationship to his or her writing performance.

Although the core processing capability of Wikis is the support of the editing process, there may also be other benefits of using Wikis. Learners add content to Wikis. Regular usage of learners and the organic grow of content in Wikis gradually form a virtual community of Wikis users. They login the platform, they read news headlines, news articles, they add their own, they revise their own work, and they add links for key terms while linking independent articles together. Therefore, all these social activities may also have effects on individual mental representations and cognitive processes. We postulate,

H3: Individual learner's usage behaviour would have a direct and positive relationship to his or her writing performance.

6. Methodology

6.1 Background

A student-written Wiki (named, HKNews at <http://hknews.syc.edu.hk>) has been setup for the Department of Journalism & Communication at a private local university in Hong Kong. HKNews Wiki is open to the public; however, its primary aim is to support teaching and learning by allowing student reporters to contribute original

news reporting. Up till February 27, 2007, there were 3720 news reporting articles in HKNews Wiki site, and a total of 47,675 edits (12.82 edits per article), with a total of 1,938,340 view counts in the whole site. There are 1,480 registered users, of which 3 (or 0.20%) are System Operators (Sysops).

6.2 Data Collection

Every Tuesday afternoon, the department arranges industrial leaders from society to offer seminars to all the students and staff in the department. We targeted our study in Year One students who enrolled in the course JOUR100, a compulsory introductory course to all Year One students and they have not used HKNews Wiki before. Stage 1: Survey on writing self-efficacy - On October 9, at a class, 75 of them completed and returned at class (One of them was absent from class). Stage 2: Content analysis on news reporting on HKNews Wiki site – We chose October 10 seminar event and the corresponding news reporting for analysis. This event was chosen because this was the third seminar that student reporters already had two times of basic hands-on experience on using Wikis and had solved most of the technical problems.

6.3 Measure

Stage 1 - Survey: For the survey, writing self-efficacy measurement scale was adopted from Jacobs et al. (2005, *ibid*) and wordings were modified to reflect news reporting tasks. Stage 2 – Content analysis: For the content analysis, we analyzed the personal profile page, the article page and the history page. For the personal page, student reporters included mainly the headlines of their written news articles. Some might inserted some graphics on the page. The article was graded by their instructor, who was a senior faculty member in the department and has more than thirty years working experience in TV broadcasting, radio and publication industry. The score became the final grade, ranged from 0 to 100 marks.

7. Data Analysis

Data analysis started with a review on the background and general Wikis' usage behaviour of the subjects. Then, the student-written Wiki pages would be analyzed to give an understanding of how learners made use of the Wikis to write and present their work. Lastly, the three hypotheses were examined using regression analysis.

7.1 Analysis of Subjects

75 student reporters completed the survey and returned at class where one was absent from the class. Analysis of subjects is shown below (see Table 1).

Table 1. Descriptive Analysis of Subjects

Items	Statistics	Items	Statistics
Gender	Male: 19 (25.3%) Female: 56 (74.7%)	Wiki's Usage Frequency (never to always, 1-7)	Mean: 4.24 (SD: 1.03)
Age	Mean: 19.39	Wiki's Usage (Last Week Total)	Mean: 98.05 min. (SD: 55)
Computer Knowledge (very little to expert, 1-4)	Mean: 2.03 (SD: 0.66)	Wiki's Usage (on average, every time)	Mean: 31.76 min. (SD: 31.39)
Familiarity of Wikis (very little to expert, 1-4)	Mean: 2.84 (SD:0.72)		

Internal consistency of the 26-item writing self-efficacy scale is examined using Cronbach's alpha value. The scale shows a Cronbach's alpha value of 0.96, exhibited a valid internal consistency, with above the common threshold for exploratory research ([21]). The results of the 26-item writing self-efficacy survey are shown below (see Table 2).

Table 2. Descriptive Analysis of Writing Self-efficacy

Writing Self-efficacy (Cronbach's $\alpha=0.96$)	26-items: Mean: 56.76 (SD: 12.987) to 72.25 (SD: 16.206) Composite: Mean: 63.82 (SD: 9.81); Min.: 13.85, Max.: 81.92
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7.2 Analysis of Student-written Wiki Pages

Out of the 75 student reporters, 57 of them had included news headline and the news reporting on the Oct 10, 2006 event. An analysis of these 57 articles is listed below (see Table 3).

Table 3. Descriptive Analysis of News Reporting of Oct 10 Event on HKNews Wiki

Formatting	Analysis	Formatting	Analysis
Author's Name	No: 30 (52.6%); Yes: 27 (47.4%)	Bulleted list	Nil
Length (no. of words)	Min.: 160; Max. 1040 Mean: 423.86 (SD: 148.15)	One idea per paragraph	No: 8 (14%) Yes: 49 (86%)
Highlighted keywords	Nil	Inverted pyramid style	No: 11 (19.3%) Yes: 46 (80.7%)
Sub-headings	No: 23 (40.4%) Yes: 34 (59.6%)	Photos, Reference sources	Nil

7.3 Analysis of Editing Log of Oct 10 News Reporting

Analysis of the news reports found that, 14 (24.6%) student reporters uploaded the news reporting onto the HKNews Wiki site without any further edits while the others edited ranged from 1 time to 10 times. On average, there were 2 times of editing updates for each news report (SD: 2.10); (2) Edits time span: Moreover, there is also a time span between the first published version to the final edited version. Two-third (N=38, 66.7%) of the news reports finished all the editing process on the same day, while the remaining 19 (33.3%) ranged from 1 to 21 days. On average, it takes 2.11 days (SD: 4.17) for student reporters to feel comfortable about the report and not to edit any more; (3) Contributors' identity: Wiki users may register and login the system to both browse around and making changes in the Wiki environment. They might also not login but were capable to do all the steps; however, the IP address of the computer would be listed instead. It was found that the mean number of account login in editing the news reports was 1.95 (SD: 2.15); while IP address editing was 1.04 (SD: 1.55); (4) Timeliness of news reports publication: The timeliness of the news reports can be measured by the time span between the date of the event and the date of the report published on Wiki. Analysis of the time span of the 58 news reports found that it takes an average of 3.46 days (SD: 4.13), which means that there is a lagged time for the news appeared for the readers. One third of the reports appeared on the same day or 1 day after the event (N=21, 36.8%); another one quarter published two days after the event (N=15, 26.3%); the remaining (N=21, 36.8%) published from 3 days to 23 days after the event. An analysis of this editing log is listed below (see Table 4).

Table 4. Descriptive Analysis of Editing Log of Oct 10 News Reporting on HKNews Wiki

Editing Log	Analysis
(1) Number of edits N.B. Total number of revision, except first posting	No edits: 14 (24.6%) Max.: 10, Min.: 1 Mean: 2 (SD: 2.10)
(2) Edits time span N.B. Time span between the first edit through the final edit	0 days: 38 (66.7%) Max.: 21 days, Min.: 1 day Mean: 2.11 days (SD: 4.17)
(3) Contributors' identity N.B. Registered and use account login vs. no login but shown IP address of editor's computer	Account login: 1.95 times (SD: 2.15) IP: 1.04 (SD: 1.55)
(4) Timeliness of news reports publication N.B. time span between the date of the event and the date of the report published on Wiki	0-1 day: 21 (36.8%) 2 days: 15 (26.3%) 3-23 days: 21 (36.8%) Mean: 3.46 days (SD: 4.13)

7.4 Regression Analysis

The writing performance was examined by the grades. Linear regression analysis found that total number of edits ($\beta=0.462$, $p<0.001$) was significant factor that predicted the score of the news reporting (*supporting H2*). The model explained 22.6 per cent of the variance of the score, significant at $p<0.005$ (Adjusted R-square:

0.178). However, Wiki's knowledge and writing self-efficacy was not found significant to predicting writing performance (*H1, H3, not supported*).

8. Discussions

In this paper, we analyzed the shortcomings of current approaches to support teaching and learning: instructor lead design and irrelevant to learning writing. We then examine the potential of Wikis as a learning medium in the context of journalistic writing. Supported by prior studies in writing literature, the unique design feature of Wikis in supporting revision seem relevant and important to providing learners a unique experience in practicing and learning journalistic writing. Empirical results of this study found that number of editing of a news reporting is significantly correlated to the writing performance, supporting the theoretical assumption.

On the other hand, it is important to discuss more of the various instructional designs to encourage more revision and discussion of the issues under different circumstances where revision takes place. We hereby suggest the following framework in the implementation of Wikis to support learning writing (see Figure 3).

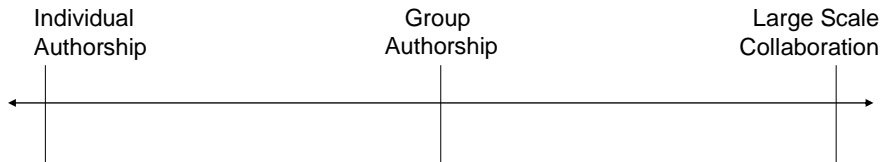


Figure 3. Fusion Modes of Implementation Strategies for Wikis

While revising is the key, it is suggested that the three writing modes: (1) Individual authorship; (2) Group authorship; and (3) Large scale collaboration, be introduced in the curriculum, either at the same time or throughout different semesters, in order for a learner to fully benefit from using Wikis to create a unique learning experience.

- (1.) *Individual Authorship*: This is important to keep a learner the responsibility to his or her own learning as he or she owns the writing piece. We need to design a mechanism to motivate the learner to self-reflection on his or her writing and do the editing on his or her own. For example, for a writing task, the instructor may suggest a schedule for all learners so that they draft the outline the first week, they finish the first draft the second week, and they make three additional revisions on the three following weeks. This is actually a practice in composition writing and is the basis for process writing. The key is to develop a regular pattern so that learners will continue the revision process.
- (2.) *Group Authorship*: Learners work in groups may have a chance for an intense interaction among peers. Form learners into small groups, request them to complete a writing task and develop a mechanism for them peer review each

others work. Wikis provide a platform transparent to all. Anyone can edit any page. Therefore, Wikis make it an efficient tool for a group of people working together. In this instructional design, there is a diffuse responsibility on who owns a writing piece. Learners work together and hence, learners have a chance to learn from a different perspective on how to edit a writing piece. Wikis provide a history log so that anyone can compare any two prior versions. This social interaction expands the cognitive process of any individual learner alone.

- (3.) *Large Scale Collaboration*: This design does not care any more about authorship. The focus is on the writing piece. Anyone can create a new writing piece while any other one can edit and enrich the content. Therefore, learners do not write because of the ownership of the writing piece, but are based on the topic that they are interested. A learner can learn as much as he or she wishes by his or her commitment to a specific topic. On the one hand, a learner learns by his or her own study and writing practice in the topic; on the other hand, he or she also learns from other learners interested in the topic.

There are several limitations in the study. The domain knowledge about journalistic writing is contextualized and specific; the results may not directly be generalized into other disciplines. Further studies in other writing context may add better understanding of the issue. Moreover, the sample size is small and the time frame is limited, these are also the limitations of the study. In future research, we can study a bigger sample size of subjects, choosing several instead of one writing piece over a period of time that would probably provide us with a rich explanation to the learning process. This is especially true for a learner to fully reflect his or her mental representation into measurable learning output.

9. Conclusion and Future Works

In this paper, we analyzed the design features of Wikis, specifically the editing capability, in relation to the writing process using a field research on a group of student journalists on learning journalistic writing. We examined the usage pattern and found significant relationship between revision and writing performance. This result is supported by prior studies in writing while showing that Wikis as an effective learning medium relevant to the learning of writing.

However, some problems still need to be solved, such as how to motivate learners from revising their work, how to improve peer interactions to provide basis for quality revision, or how individuals react differently within the medium. We will continue our research on these problems and provide implementation guidance for educational practitioners fully utilize Wikis as an effective learning medium.

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