

An Evaluation Plan for Assessing the Utilization of Wikis as Collaborative Writing Tools

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Abstract. This study aims to assess students' collaborative writing activities using Wiki as a tool, building upon the research conducted by Hadjerrouit. An optimized experimental plan was designed to enhance the research approach. The enhancements involved expanding the experimental sample size, implementing a control group, incorporating self-assessment links, and utilizing binary response formats. Prior to commencing the experiment, all participants underwent rigorous training and testing to mitigate potential confounding factors. Subsequently, the acquired experimental data was analyzed using the same methodology as Hadjerrouit to derive conclusive findings. Nevertheless, it is crucial to acknowledge that the outcomes may be influenced by participants' learning abilities and the duration of the experiment, despite the ideal nature of the experimental plan.

Keywords: Evaluation, Innovation, Research method.

1. Introduction

To evaluate students' collaborative writing activities empirically in a teacher education Wiki-based environment, Said Hadjerrouit conducted a study. From January 12 to March 19, 2012, 16 students from Web 2.0 technology courses participated in the study. Participants are divided into 2-4 groups, and each group has 6 people. Nine of them are full-time students, and seven of them are part-time students. All students have experience working in small groups and have a background in teacher education, but they have no idea about wiki-based collaborative writing. Before the experiment, all of these have been introduced into Web 2.0 technology. Wiki missions are specified in collaboration with lecturers. Each group needed to study a specific topic and create a wiki from the perspective of teacher education.

Researchers use three methods to analyze the results:

- The data record of history function is classified according to 10 action types.
- The comments are posted by students on the Wiki discussion page and classified according to increased collaboration.
- Peer-to-peer allocation to provide feedback to each other's wikis and emphasize the level of collaboration.

After analyzing the results, researcher found that the collaboration is rather low, and there are four main factors that influence collaborative writing.

2. Evaluation of the Pedagogical Innovation: Limitations

It was good research, but it also had limitations. First, the sample size is small, with only 16 participants, and they all come from one course, so they may not cover the large number of students in teacher education well. Second, they use limited measurement methods, use more methods may enhance measurement validity. Third, there was no control group, It should set a control group to compare the results. Also, the students age-groups are also single structured. Fourth, study time was fixed, it lasted may too short, students may not have enough time to acquire the skill to use wiki. Fifth, five-point Likert questionnaire has less validity

3. Suggestions for Improving the Evaluation

Based on the limitation I find, here are several suggestions for improvement. (1) researchers should choose appropriate sample size with large population and various types of sample group.

(2) Researchers need to use more measurement methods to evaluate the results.

(3) Use binary answer format to improve questionnaires validity.

Bryman, A. (2016) pointed out that these groups need to be considered and that the armor has a more comprehensive view across all groups with different learning durations. Hubert,J(1999) addressed that when under same condition, the sample size of population in different aged groups need to be larger. Besides,Bryman, A. (2016) use more methods such as focus groups, interviews, self-evaluation, observations, and control group can enhance measurement validity. What's more Jones (1968), Preston and Colman (2000), Dolnicar (2003) and Dolnicar and Grün (2007a and b) concluded that the binary answer format was completed faster and more stable than five-point Likert questionnaire.

4. Evaluation Plan

The article conduct research by five research questions. After collecting data, they analyzed in three level to fine students' behaviors. They explored the degree of collaboration of students' operations on Wikis in the history log, the degree of collaboration of student reviews posted on the discussion page, and the degree of collaboration represented by Wikis when assessed through peer assessment. In my evaluation plan I will set up a control group for comparison and will also analyze how students use the wiki to complete assignments from these three aspects. The main innovation in my evaluation plan is to improve research methods , and remove some extra factors which the researcher hadn't considered. What's more I will follow the same wiki task as the researchers put out to find any difference will come out. In the article, researchers found that many students participated in the experiment without contain the knowledge and skill of using wiki to do collaborative writing, so in my evaluation plan I will design a part to train the participants, only when they can use wiki to do collaborative writing, the experiment begin.

5. Evaluation Questions and Aim

The research question of my evaluation plan is "how is wiki used as a tool for collaborative writing?" So the aim of my evaluation plan is "to evaluate how wiki is used as a tool for collaborative writing."

6. Literature Review

6.1. Determining Sample Size

Glenn D. Israel (1992) proposed a method to determine the sample size, which claim that we could use the same sample size when the study is similar with what we planned. As I searching the studies had been made, Greg Kessler(2009)had conducted a research about student-initiated attention to form in wiki-based collaborative writing. Based on the theory Glenn raised, I choose the same sample size as Greg Kessler(2009).

6.2. Control Group

In experiments , control group is the standard to be compared. Many experiments will include a control group and one or more experimental groups when being designed. Ideally, the control and experimental groups are identical in all respects, except that treatment or intervention in the experimental group is considered to have an impact on the target outcome, while the control group does not. The addition of the control group greatly enhanced the researchers' ability to draw

conclusions from the study. In fact, only in the presence of a control group can researchers determine whether the treatment being studied do indeed have a significant impact on the experimental group and reduce the possibility of making incorrect conclusions(Study.com, 2019).

The control group is particularly important in social sciences such as psychology.

Because it is virtually impossible to completely eliminate all biases and external influences that may change the experimental results, but researchers can use a control group to focus on the variables what they want to test. Failure to provide strong control group evidence may render the study ineffective.

6.3. Self-Assessment

A self-assessment is a thoughtful, written review of a person's performance during the assessment cycle. It involves evaluating established goals, capabilities and overall performance. When he conducts self-assessment, he actively participates in his assessment. His involvement allowed him to assess his strengths and areas for improvement honestly. What's more Self-assessments also help increase investment in goal setting / achievement, capacity development and career planning(Hr.virginia.edu, 2019).

The main purpose of motivating students for a serious self-assessment is to promote learning and achievement, to promote academic self-regulation, or a tendency to monitor and manage their own learning (Pintrich, 2000; Zimmerman & Schunk, 2004). Research has shown that self-regulation is closely related to achievement: when students set goals, they can develop flexible plans to achieve themselves, and monitor their progress to learn better at school and do better than those who do not. Self-assessment is a core element of self-regulation, as it involves identifying task goals and checking a person's progress in achieving them. As a result of self-assessment, self-regulation and achievement have improved (Schunk, 2003).

6.4. Binary

The binary response format is defined as only two possible formats in the response metric, such as yes or no, yes or no.

The advantage of the binary response format is that the responder can answer the questions easily. This can reduce respondents' psychological stress. Comparing items with many response options, especially items with midpoint options, the binary answer format is not cognitively necessary. But analyze from a result, respondents are more likely to complete binary projects, especially during lengthy metrics. Another advantage of the binary response format is that relatively small samples need to be sized to fit the measurement model because they need to estimate just few parameters. (Eric K. H,2014).

6.5. Collaborative Writing

Collaborative writing requires two or more people to produce a written document. Which is also called group writing, it plays an important role in the business world, and many forms of business writing and technical writing depend on the efforts of collaborative writing teams (Encyclopedia Britannica, 2019).

7. Methodology

7.1. Participants

The participants are 40 students participate in this study for a seminar who are all from a Web 2.0 technology course Those 40 students will be divided into 2 main group, on is experimental group and the other is control group. The participants in each main group will be divided into 5 teams of 4. Half of them are full-time students and the others are part-time students. Each team has the same number of part-time and full-time students. All students in experimental group have experience with working

in groups, but none of them have good command of wiki-based collaborative writing. Before the experiment, every student in experimental group will be asked to take training course about how to use wiki to do collaborative writing. And they also will be introduced to Web 2.0 technologies. Some students have basic technologies knowledge and skill. After all of them contain the knowledge about using wiki to do collaborative writing, the experiment begin.

In control group, students will compete the task by using traditional approach. And before the experiment, all of them will attend some lectures about how to do collaborative writing offline. After several classes, they should take a test about collaborative writing, only when everyone reach the standard level, can they begin the experiment.

7.2. Wiki-task

Lecturers will give specific wiki tasks in collaboration. Experimental group studies a specific topic and creates a wiki from the perspective of teacher education. Students are encouraged to coordinate their work and decide by themselves to choose a member of the group to be the manager, who are responsible for coordinating the work of the group. Two weeks before the deadline, the groups present to their peers and lecturers about their tasks, who will provide constructive comments. Before performing Wiki tasks, students will be introduced to the special and technical features of Wiki during the first week of the course. Over the next 2 weeks, lectures on collaborative writing are held. Students are required to submit their wikis for continuous monitoring. Two weeks before the deadline, Wikis will be evaluated through peer review through a set of pre-established criteria. What's more the control group students finish the task by have face-to-face talk offline and write an article online.

7.3. Assessment Goals and Requirements

Wikis should follow general usability standards, such as technical layout, text organization, and paragraph structure with headings and subheadings. The wiki should contain links, images, tables, lists and references. Second, the wiki should provide quality information without language, grammar, and spelling errors. The content should draw on the latest curriculum developments in teacher education and include learning materials and topics of interest to students. Third, wiki content should be self-explanatory and relevant and appropriate to the users' characteristic. In light of these requirements, students are encouraged to do collaborative work like editing each other's work and also be encouraged to debate and reflect on Wiki-related issues actively. In order to ensure students can produce a sufficient amount of writing, they are required to provide a wiki which should more than 4000 words. Fourth, in order to improve the quality of Wikis, students are required to provide constructive feedback of each other's Wikis. In the end, according to the number of works they produced, students will be evaluated as a team that created a collective wiki, rather than individually(Said Hadjerrouit,2014).

As for control group, they need to submit a standard file, which obey the instructions. Students will be evaluated as a team through the diary and weekly work. They are also required to submit more than 4000 words file and every team member should evaluate others' file and give score and comments.

7.4. Data Collection and Analysis Methods

This work uses four data collection and analysis methods and their combinations for experimental group. The first method is a taxonomy with 10 types of actions. Collect and analyze the total number of actions for each team and category, including their frequency of occurrence and percentage of contributions, such as whether the action added, deleted, or clarified information; added, deleted, or permalinks; formatting, spelling, style, or grammar. In addition, actions are analyzed based on three main action groups and their level of collaboration. The second method is designed to evaluate comments posted on the discussion page. These are categorized by technical issues, Wiki content, and collaboration. And quantitative analysis based on the number of reviews, and qualitative analysis based on the level of collaboration. The third method is peer assessment to provide constructive

suggestions for improvement. This is based on a questionnaire with open questions and is categorized by technical issues, Wiki content, collaboration and discussion. Require students to indicate how consistent they are with the questionnaire statement based on binary answer format. Peer review is mandatory and takes place 2 weeks before Wiki delivery. Forth, after the experiment every students is required to rate their behaviors in collaborative writing according to the questions on the questionnaire, which is based on a five-point Likert scale from 1 to 5, where 1 is coded “excellent”; 2 as “good”; 3 as “just so so”; 4 as “bad”; and 5 as “terrible”. Finally, the results from these four methods are cross-checked to see if similar results are found regarding collaborative writing(Said Hadjerrouit,2014).

As for control group, there are three methods to collect data. First of all is observation, students need to do the team work every week. Every week after discussion, students need to write dairy and update the task file online. The diary need to contain the process of brain-storming. Second, 2 weeks before the deadline, students are asked to do peer review as the experimental group. What’s more, they also need to do self-evaluation at the same time as experimental group.

8. Feedback and Expectations

After analyzing the results, we can find that the quality of the submissions of experimental group is better than those submitted by control group. When studied the diaries and weekly work made by control group, we can find that use wiki to complete collaborative writing can save much time, sometimes have discussion offline may waste time, and not all students fully understand the task. Using technology to record every students behaviors can help to make equal assessment. But wiki may causes confusion if teammate doesn't get agreement about how to deal with the task.

9. Limitations

Due to the research is an ideal experiment, so there are many limitations exist. First, before the experiment, students need to take training courses, experiments will not start until everyone grasps the knowledge and skills of wiki collaborative writing. But learning ability of every students is different, so it may cost many time to let everyone acquire. Second, the participants are only from one course, the result may not can reflect reality. Third, as for control group, when they write diary, they may not write down the truth, because everyone tends to modify themselves. What’s more, update assignment file weekly may not available, sometimes they may not get useful conclusion after discussion. Forth, the experiment lasts so long ,it may cost students much spare time, which may result in their impatience and complete the task randomly. Fifth, as for control group, the critical standard is not very clear, the writing ability and cooperation ability may also impact the results.

10. Conclusion

In conclusion, this study assessed students' collaborative writing using Wikis in a teacher education setting. The experiment involved 40 participants divided into experimental and control groups. Collaboration levels were relatively low, influenced by four key factors. Although valuable insights were obtained, limitations like a small sample size and fixed study duration were acknowledged. To enhance future evaluations, larger and diverse sample sizes, varied measurement methods, and binary response formats in questionnaires are recommended. Addressing these limitations will provide more comprehensive insights into Wikis' efficacy as collaborative writing tools in education.

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