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Group Scribbles to Support Elementary Students' Writing Based on VSPOW Model: A Preliminary study

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Abstract: The aim of this study is explore the writing performance effect of a collaborative writing approach mediated by a computer-assisted collaborative learning tool for elementary school students. To increase students' interest and performances in Chinese essay writing, we facilitated co-writing peer learning programs are executed on Tablet PCs with Group Scribbles software for students' practicing themes about Taiwan with VSPOW (Vocabularies → Sentences → Paragraphs → Outlines → essay Writing) writing model. Through the peer collaborations, the pooling of rich vocabularies and corpus, and face-to-face discussions, the students' motivation and quality of writing had been enhanced.

Keywords: Collaborative writing; Language learning; V.S.P.O.W.; Group Scribbles

1. Introduction

Writing is one of the three foundations of a basic skills-oriented education program within schools, along with reading and arithmetic. Writing is not only a significant means of efficient communication, but also the key for developing the higher order thinking ability of next generation. With the proliferation of Internet access, children are bound to be exposed to information in a fragmented manner. Thus, it is vital to nurture organized and constructive writing among young students. In order to accomplish this goal, it is necessary to develop systematic and constructivist approaches for writing instructions.

2. Literature Review

2.1 Collaborative Writing

In a collaborative learning setting, students work together to accomplish shared goals. The result is that the group is more than a sum of its parts, and all students perform higher academically than they would if they worked alone [1]. Students build their own knowledge through interactively communicating and discussing in group-based cooperation [2]. Collaborative learning enhance students take responsibility not only for their own learning, but also share the responsibility for helping other members of the group achieve instructional goals [3]. Therefore, students working with others toward a common goal draw upon their interest in the peer group that gives meaning to the relationship. The advantages of computer-based writing include improved writing quality, increased teacher-student and student-student collaboration, as well as

motivation to write and revise. Moreover, Scardamalia & Bereiter [4] speculated that one of the key drivers of collaborative writing is dissatisfaction in interplay. If students do not like the contributions taken by their peers, they may be more inclined to participate in order to make their own.

2.2 VSPOW writing model

The collaborative writing approach, VSPOW [5][6], can be characterized as a recursive, bottom-up writing process that encompasses collaborative and independent writing. The writing process consists of five major stages, namely, word/phrase pooling, sentence making, paragraph writing, outlining, and essay writing. Each of the first three stages is subdivided into three similar steps, namely, intra-group collaborative "pre-writing" (i.e., word/phrase pooling, sentence making, or paragraph writing), intra- and inter-group reviews, and class-wide consolidations.

We use the word/phrase pooling stage to elaborate on how the three steps are executed. The stage begins with students working in f2f groups sharing one computer to brainstorm words/phrases that describe the scenario or the story in the given picture(s). They take turn to input their personal contributions to their group wiki page. Subsequently, the students log on to the wiki site from home to edit their group word lists. They could also browse and learn from other group lists, spot and correct mistakes, and place a question mark next to each of the words/phrases that they do not understand. The question marks serve as requests to the contributors to add explanations on the wiki pages. Finally, the teacher facilitates a class-wide discussion to select a set of words/phrases from all the group lists. The selected word list is then "fed" into the next stage as a reference for the groups to proceed to make sentences.

Wong et al. [6] explicated the rationale behind the bottom-up process design that the approach does not prescribe an expert writing process but merely a divide-and-conquer *means*/strategy to help students in improving individual writing micro-skills (choice of vocabularies, sentence structure, essay content, essay organization, etc. are known as "writing micro-skills"). There were prior studies on isolated activities to upgrade students' individual skills (e.g., see [7]). However, their design synergizes the skills in a bottom-up writing process that is directly situated in the context of essay writing. It should give the students a better sense of the relationships between individual skills and their writing.

As reported by Wong et al. [6], the students involved in their earlier study were motivated to help each other when they worked in groups; and they felt less threatened when they made mistakes, as their group-mates who "came into rescue" might have their own weaknesses after all. Consequently, they achieved improvements in their weaker skills as well as gained pride through helping others in what ones are good at. The study concluded that VSPOW has the potential of addressing and even leveraging students' individual differences due to such *emergent peer coachin*g among them.

2.3 Group Scribbles (GS 2.0)

We adapted the Group Scribble as the platform for the activity, and conducted analysis of the collaborative work within these groups. Group Scribbles (GS) is a computer-supported collaborative learning system developed by SRI International to conduct small-group collaborative concept mapping activities [8][9].

Each group has a mobile tablet pc, and sees a screen divided into upper and lower frames (Figure 1). The lower frame is the Private Board that the student scribbles or types her answer individually. The upper frame is the Public Board in which the students show all of their individual answers, and work together as a group. They can even check the work from other groups by clicking the button on the top right corner (See Figure 2). The teacher can monitor their process of learning and provide appropriate guidance.

Figure 1. The GS user interface

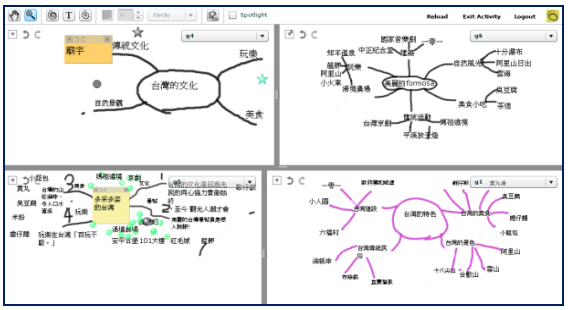

Figure 2. Group presentation board

3. Activity Design

3.1 Research Design and Research Method

This paper reports on an empirical study that involved 31 Grade 4 (10-year-old) elementary students. Before the activity students were wrote essays with the topic 'Wishes'. In order to study the writing performance effect of VSPOW model based on the GS, the participating students were divided into five groups for the essay writing with the topic of 'Introducing of my hometown - Taiwan'. A major difference between our enactment of VSPOW and the original VSPOW is that all the activities took place in the classroom, with class-wide sharing took place right after group discussions for more just-in-time inter-group comparisons.

To evaluate the students' essay quality, we adopted the standard essay marking rubric set by the Ministry of Education (MOE) of Taiwan with five-point scale measurements of 'vocabularies, sentences, paragraphs, outline, essay writing'. With the comparisons of performances and questionnaires before and after the intervention, we intend to explore the effectiveness of the VSPOW model mediated by the GS platform in students' interest and attitudes.

3.2 Co-writing Process

The experiment was set up in a classroom with wireless network. Each group of students had already been familiarized with the basic functions of Tablet PCs and wireless internet. They had the experience of writing their Chinese essays on the Tablet PCs.

1. Vocabulary pooling stage: All students wrote the vocabularies on a piece of paper when watching the video clip of 'Taiwan --Touch Your Heart' on YouTube. After this, each group proceeded to brainstorm vocabularies related to the video content and posted them onto their group GS space. The teacher could use the electronic smart board to view and guide the groups' results, and each group could revise their postings any time during the entire session. (See Figure 3)

2. Sentences extend stage: Each group extended the vocabulary which were developed by the step of 'Vocabulary Pooling Loop' to sentences, and put the results on the group discussion board.
3. Paragraph writing stage: Each group extended the sentences which were developed by the step of 'Sentences extend Loop' to paragraphs, and put the results on the group discussion board (See Figure 4).
4. Outlining in Mindmap Form: Each group presented their paragraphs and mindmap-style outlines to the class. The teacher showed a cascaded display of all the group mindmaps, and facilitated a class-wide discussion for final revisions.
5. Individual Essay Writing Stage: At this final stage, students' wrote their essays independently, not with GS but with paper and pen, with the aid of the rich corpus built during the earlier pre-writing stages. After being reviewed by the teacher, the completed essays were scanned and uploaded to the Moodle platform for final revision.

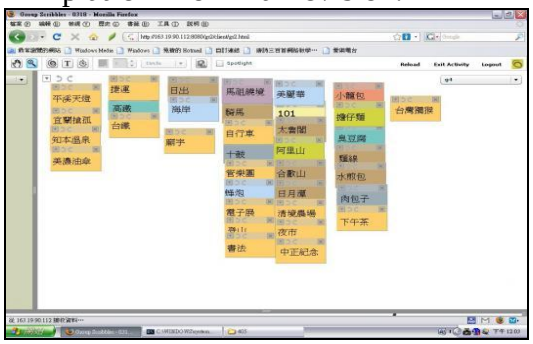

Figure 3. Group Vocabulary Pooling

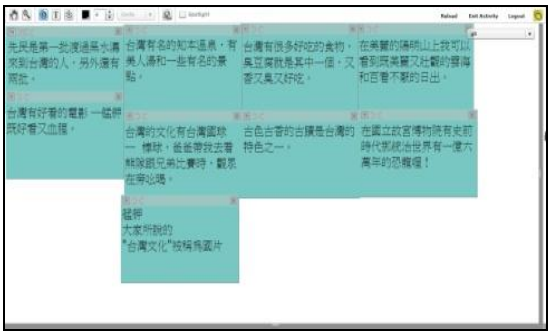

Figure 4. Group board of paragraph discussion

4. Findings

4.1 Writing Performance

Two essays were selected in this paper: 'Guideline of my hometown - Taiwan' and 'Wishes' (the first essay with an assigned topic for the grade 4 students). With the comparison of performances before and after the intervention, we found students' significant improvements in both the overall quality of their essays and the competencies of individual micro-skills of essay writing.

The overall quality of the essay writing had significantly improved. There are 21 students had better performance, 8 students remained the same, 2 students performed worse than before, and 68% students improved their writing skills.

With the support of the "peer co-writing" and IT tools, there are significant improvements of students' 'word and paragraphs' which 12 students showed the improvement in 'vocabularies' and 9 students showed the 'paragraphs' improvement. However, the improvements of 'outline, essay writing, and sentences' are not big due to the requirement of a long-term development. Only 5 students have the improvement of 'outlines', 3 students – 'essay writing', and 2 students – 'sentences'.

4.2 Student Perceptions in Writing

A questionnaire was administered after the intervention. Nineteen students agreed that writing had become easier, as student No. 25 mentioned, *'I think writing is easier for me than before with the support of group discussion*'. We had also probed the students in what kinds of support offered during the intervention that had helped them

the most in their writing. Eleven students perceived that it was most helpful in improving their outlining skills, 8 students chose the video clip, 7 picked the vocabularies pooled during the group discussion, and 5 considered the group-generated paragraphs most helpful. For instance, Student No. 27 discussed in the video interview that 'the writing should be quite diverse because of group discussion'.

4.3 Individual Contribution and Group Collaboration

In order to investigate the group dynamics during the experiments, the questionnaire was designed for individual contribution and group collaboration acceptance with five categories. According to the results, for the "individual contribution": 13 students presented the achievement on 'paragraphs, 10 students - 'vocabularies, 9 students - 'sentences' and 'outline'. Only 6 students chose 'essay writing'. For the 'group collaboration', the results showed that 13 students took the 'vocabularies', 12 students - 'paragraphs', 11 students - 'sentences', and 5 students - 'essay writing'. Take the fifth group (G5) as an example, both students No.29 (S29) and No. 32 (S32) confirmed their personal contributions on 'word', and support from other group members. Regarding S32's weak point of 'sentences' and 'paragraphs', the result showed he got significant support from other group members.

5. Conclusion

The GS platform based VSPOW model increased the students' efficient, progressive discussion and essay writing. With the classmates' collaboration, the pooling of rich vocabularies and corpus, and real-time discussion, the collaborative learning enhances the students' writing speed, quality, and motivation. With this approach, it was the first time that two students who previously had difficulties in completing their essays within the given time limit managed to finish writing their essays in time.

In the future, we will conduct more rounds of VSPOW and collect the data for the analysis on how the quantity and quality of students' contribution and group collaboration influences individual students' writing performances. The group discourses will be recorded and analyzed in the lens of Computer-Supported Collaborative Learning (CSCL) as well.

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