
Title	Comparing enactments of a collaborative writing activity in a networked language learning classroom
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Source	<i>20th International Conference on Computers in Education (ICCE 2012), Singapore, 26 – 30 November 2012</i>
Published by	National Institute of Education (Singapore)

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Citation: Wen, Y., Chen, W., & Looi, C. -K. (2012). Comparing enactments of a collaborative writing activity in a networked language learning classroom. In G. Biswas, L. -H. Wong, T. Hirashima & W. Chen (Eds.), *Proceedings of the 20th International Conference on Computers in Education* (pp. 690-697). Singapore: Asia-Pacific Society for Computers in Education.

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Comparing Enactments of a Collaborative Writing Activity in a Networked Language Learning Classroom

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Abstract: Good learning activity designs do not guarantee effective classroom orchestration by the teacher. Enactments of the same learning activity design may vary greatly among different teachers. This study compares two teachers' enactments of a collaborative learning activity in a L2 writing classroom supported by a networked technology called Group Scribbles (GS). Plausible factors of teacher's moves and actions that impact the different enactments are identified and discussed, including articulating the objective of activity explicitly, providing improvised formative assessment and scaffolding to support students' work on an ongoing basis, and controlling the tempo of the activity and maintaining students' enthusiasm.

Keywords: Enactment; Collaborative writing; Networked language classroom

1. Introduction

In a computer-supported collaborative learning (CSCL) environment, teachers are required to shift their role from being a dominator to being facilitator, guiding and helping students with their learning. Despite the realization that the way teachers enact the instructional practices is essential for the success of collaborative learning, much research focuses on the interactions among students when they are engaged in collaborative learning [2, 9]. Relatively less attention is paid to teacher practices in the networked classrooms where collaborative learning tasks place. A small group of researchers seek to analyze how teachers create opportunities for student interaction through analyzing teacher discourse [7, 8]. These studies investigate how teacher-led discussions have affected classroom interactions and identified successful strategies that teachers used in an inquiry classroom [11]. In addition, findings reveal that enactment styles vary amongst teachers with different beliefs, pedagogy and content knowledge [3]. Puntambekar et al. [6] claim that few studies have investigated "how difference in enactments of collaborative activities might impact students' learning outcomes" (p.82). Enactments may vary greatly amongst different teachers, even though they address the same activity design. Puntambekar et al. [6] compare classroom enactments of an inquiry science curriculum by two teachers and suggest the importance of teachers in helping students make connections between activities such as brainstorming, generating questions, finding and applying information in an inquiry unit. The findings of studies in the context of science and mathematics may not be applicable for language learning. Research on teacher's enactment of pedagogy design in productive collaborative learning for language classrooms is still lacking.

Collaborative activities have been widely used in language learning [1]. A growing number of researchers work on developing technological environments to provide explicit

scaffoldings for language learners, as well as visualization of and feedback on group work process. These studies focus on technology design instead of CSCL pedagogical design and enactment in authentic classroom environments. This paper uses a comparative study approach to examining the differences of teacher enactment of the same collaborative writing activity, seeking to explain these differences, and how they might impact language learners' learning outcomes. It is a collaborative second language (L2) writing lesson in a networked classroom supported by a collaborative technology called Group Scribbles (GS). The findings shed light on how to address the teacher's role and challenges in enacting well-designed CSCL activities successfully in real classroom settings.

2. Context of Study

The study described here is part of a 3-year project introduce Rapid Collaborative Knowledge Improvement (RCKI) to language learning classrooms in a secondary school of Singapore [5]. The school provides a technology-rich environment for students. Each student is equipped with a laptop. In Singapore schools, English as the first language is the main teaching language in schools, whereas Chinese is taught as a second language (L2) for the Chinese ethnic students. This paper focuses on the enactment of collaborative L2 argumentative writing lessons in secondary grade 2 (14-16 year old) higher Chinese classes.

The two experimental classes are selected because the students' writing ability of the *two classes is at a similar level* in term of the scores of writing in school's examination on Chinese subjects ($t=-0.265, p>0.05$). One of them, Class E1 (N=20) is taught by *Chin*, who is a female teacher with approximately 10 years of teaching experiences. The other one is Class E2 (N=16) taught by *Judy*, who has about 5 years of teaching experiences. Both Chin and Judy have had experiences of studying Chinese language abroad (Chin in Taiwan for 4 years and Judy in mainland China for 3 years). Compared with other local Chinese language teachers without overseas educational backgrounds, these two teachers are fully aware of the necessity and importance of Chinese ethnic students in mastering the Chinese language well. They are willing to try new teaching approaches to arouse students' interests in Chinese language learning. Both of them fully believe that every student has potential, and what teachers need to do is to assist students to reach their potential.

3. Intervention

GS is a software platform designed for supporting students to create lightweight multimodal representations for mediating collaborative activities. Its workspace is divided into private and public spaces presented in a two-paned window (Figure 1). The lower pane of the GS is the user's personal workspace or private board whereas the upper pane is the public board or public board. The private workspace was provided with a virtual pad of fresh scribble sheets on which the user could draw or type. The students can share the scribbles sheets by dragging them from private space to public space. A student can select any group board by clicking the board number on the right-top, and browse all other groups' postings posted on the public board. GS hence promotes and facilitates intra- and inter-group interactions.

When exploring the affordances of GS for Chinese language learning, we have proposed the rapid collaborative knowledge improvement (RCKI) concept and related 9 principles. The concept of RCKI refers to the notion of democratizing participation and idea refinement in the context of live dynamic classroom settings, that is, face-to-face (FTF) collaborative knowledge construction and improvement over the duration of a class session, and supported by certain technologies for lightweight instant interaction (see [9, 12]).

Before implementing the GS-based collaborative writing classes, both teachers and students had been familiar with its function. A series of professional development sessions (1 hour per week, 5 weeks) were held by two researchers to ensure the teachers' belief and understanding about GS-based language learning and RCKI principles. After that, a GS-based Chinese writing lesson (60 minutes) was co-designed by the teachers and researchers, guided by RCKI principles and argumentative writing strategies.

The main learning objective of the lesson was to help students understand that an argumentative essay can be written from discussing a phenomenon followed by finding effects and providing solutions. The topic for the writing was “*Guilty? Plastic survey*”. A template (Figure 2) was uploaded as the background of each GS group board for assisting learners to perform tasks. Chin and Judy enacted the same lesson plan for their classes. Table 1 presents the main phases of the designed collaborative writing activity. Both classes of students were heterogeneously organized into groups of 4 members each.

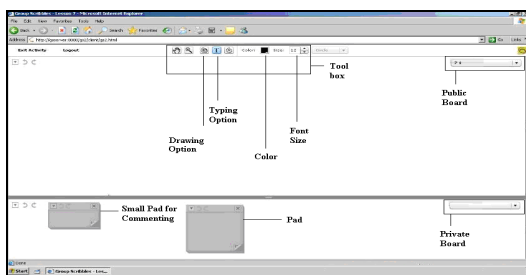


Figure1. The user interface of GS

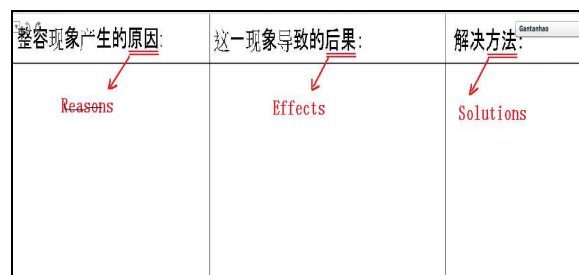


Figure2. A graphic organizer for the activity

Table 1: Overview and main phases of the activity

Phases	Teacher-directed moves
P1	Introduce to students the main purpose of the GS activity; help them recap strategies for argumentative writing; encourage them to think of phenomenon around the topic and brainstorm reasons for the phenomenon.
P2	Facilitate students to perform the task (providing “results” based on given “reasons”); ask them to explain the results and give comments for group artifacts.
P3	Facilitate students to perform the task (thinking about “solutions” based on existing “reasons” and “results”); ask them to explain the results and give comments for group artifacts.
P4	Encourage students to do FTF discussion to improve their group artifacts, synthesize and extract big ideas about their group writing.
P5	Facilitate and ask students to present group final artifacts, provide comments and summarize the whole lesson.

4. Method

This study compares two teachers' enactment of the lesson plan and explores its relation with students' learning outcomes. There are three main sources of data: 1) results of students' subsequent individual writing; 2) individual student feedback; 3) teachers' instructional discourse in the classroom. The quantitative results of subsequent individual writing and students' qualitative feedback together help ascertain any difference in learning outcomes between Chin and Judy's class. The data regarding the two teachers' instructional discourses are analyzed to find out if and how the two teachers' enactments differ, in an effort to understand what might have affected the effects of collaborative writing enactment.

When collecting data on teachers' momentary instructional practices, two researchers observed Chin and Judy's GS lessons, took notes and captured the whole class process by video cameras. The researchers used a chronological representation tool called *Studio Code* to provide visual patterns of their instructional discourse. First, for the sake of consistency, two researchers watched and transcribed all the video data about teacher discourse in two classes. Next, the transcribed data was segmented into units of “theme” by using semantic features such as ideas, discussion topic, or by regulative actions such as asking for an

explanation or explaining on specific point. Finally, the teacher instructional discourse was coded again on Studio Code to present the patterns of the teacher practices visually.

The coding scheme was designed to capture five aspects of enactment. It was developed through an iterative process of creating codes, coding, modifying and refining codes, and recording consistent with Miles and Huberman's [4] recommendations for rigorous and meaningful qualitative data analysis. We did open coding as many existing coding schemes are mainly about inquiry-based learning and thus they are not applicable for language learning. For instance, we added the item "Relating to language" borrowed from Swain and Lapkin [10] who coined language-related episodes when they studied L2 learners' language use in collaborative dialogues. Parts of the coding categories of the study came from research on enactments of inquiry lessons [6]. For example, "*Relating to topic*" referred to the way in which students were encouraged to think back about the topics they had already learned, and to connect that learning to the new topic that was being introduced. In this study, it referred to relating knowledge and strategies of argumentative writing to the current topic. "Focus on goals" referred to the speech that teacher expressed the aim of lesson or the activity design explicitly to students. The details are listed in Table 2.

Table 2: Coding schemes with examples

Categories	Items	Interpretations	Examples
1: Ensure the activities can be completed as designed	Task introduction	Introducing how to complete the tasks	"In the task 2, your group should give 'effects' based on 'reasons' that have been posted."
	Time management	Reminding students to pay attention to time	"Last 2 minutes. Seize the time to complete your group's task."
	Providing encouragement	Encouraging or giving praise to students' performance	"Group 2 did quite well."
2: Ensure the activities can be completed with a high quality	Protocol	Rules for group task complement in GS-based learning environment	"Each group leader help teacher to monitor the procedure of your group work."
	FTF discussion	Encouraging students to do FTF discussion	"Communication. Let me hear your voice of the group verbal discussion."
	Ideas	Encourage students to share ideas and improve them consistently	"After visiting other groups' board, you need to improve own existing postings"
	HOT	Encouraging skills like analysis, synthesis, categorizing, evaluation	"If you disagree with the comments from your peer group, please give your reasons."
3: Ensure students can understand the significance of the activity design	Relating to topic	Help students think back about the topics that they had learned, and connect that learning to the new topic that was being introduced.	"We have learnt about the 'Five Fingers' which taught us that an argumentative essay could be written from: individual, family, friend, county and society. You can give reasons from these 5 perspectives."
	Focus on goals	Helping student keep the overall goal of the challenge in mind while being engaged in activities.	"Today, the ultimate goal of our study is to mater the RES model for your argumentative essay writing."
4: Help students master language knowledge	Relating to language	Episodes in which the teacher deliberate over lexical or grammatical choices	"The idiom should be 'Ru Huo Ru Tu'. The last character should be pronounced as 'Tu'."
5: Help students improve cognitive skills	Asking for further think	Opportunities for students to explain their thinking	"Here, what does 'others' refer to?"
	Explaining specific point	Comment and elaborate on student ideas	"Social influence here might be understood as plastic surgery rampant in the community"
	Assessing or summarizing students' work	Providing evaluative response to students' group artifacts	"Group 5 provides reasons for the phenomenon of plastic surgery mainly from individual and society these two aspects"

5. Results and Discussion

5.1 Students' Learning

We started our analysis of student learning by examining whether the two classes performed differently in the subsequent individual writing. Each student took 50 minutes to complete the writing with the same topic in the following Chinese language class. Their compositions were marked according to writing rubric from Ministry of Education of Singapore, which has 5 parameters: 1) Solid writing material; 2) In line with topic and the goals; 3) Consistence of reasoning and focus 4) Diversity and innovation of ideas 5) Creative imagination. The maximum score for a composition is 70. All compositions from both classes were marked by two teachers. The strength of association between scores marked by them was high ($r=0.727$). The result of t -test shows a significant difference of students' subsequent writing scores between two classes ($t=3.153, p<0.01$). The mean score of Chin's class is 47.53, higher than 41.88 of Judy's class. It indicates that the writing score of Chin's class after GS-based collaborative activity is significantly higher than that of Judy's class.

In addition to academic performance, students were required to reflect on their learning experiences which help researchers to explain why the results of sequential writing differ between Chin and Judy's classes. Two semi-constructed questions were provided: Q1) Collaborative writing and individual writing, which one do you prefer? Why? Q2) What did you learn from the last GS lesson? Towards Q1 Almost all of them were positive about collaborative writing. Two students from Chin's class and three students from Judy's class stated that they prefer individual writing to collaborative writing. Students from different classes provided different reasons. Students from Chin's class emphasized that they enjoyed the process of creating alone more, compared with completing a collaborative writing task. Students from Judy's class merely emphasized that they felt it was easier to do individual writing. Of those who preferred to collaborative writing, the predominant reason given (by 12 students from Chin's class and 9 students from Judy's class) was that it provided them with an opportunity to compare and exchange ideas with each other. For example, students from Judy's class pointed out that:

"I prefer to writing together with my group members, as we can share our ideas, help each other to finish our writing." "I like group writing as we come to know others' views towards the topic, and we can choose the most suitable opinions through discussions."

Chin's students however, provided wider and deeper reasons to explain why they like collaborative writing. In addition to sharing ideas, they noted that:

"I like to write together in a group, because we can discuss with each other and provide ideas and suggestions for each other. My own idea might not be the best, but we can keep improving these ideas in group work." "...students own different ideas toward the same topic, thus everyone will be involved in intensive discussion on how to write an article. During this process, we can learn from each other, and in this way, our abilities of critical thinking and collaborative learning get opportunities to be improved."

The most obvious difference is from two class students' answers for the second questions. All 20 students from Chin's class noted that they learned that "reasons, effects and consequences (RES) are three essential parts of an argumentative essay." Just like one student expressed that:

"...RES indeed help us better understand the process and the theme of essay writing. It portrays the whole thinking process and the way to find out the answers. Making use of this model, students can get the right way of writing with guidance."

However, no student in Judy's class mentioned RES. Their feedback focused on "how to write together" or "how to complete a task with group members within a short period of time". It seems that students in Chin's class could better understand the intent of teacher's activity design. This may explain the differences on students' academic performance between two classes, although in both classes, students hold a positive opinion of their group work. It also seems that the students in Judy's class were highly engaged but did not learn as much as students in Chin's class. What might account for this difference? The researchers try to further find out if there is a difference between teachers' enactment that may cause the differences in students learning

5.2 Comparing Teacher Discourse through Chronological Representation

We used Studio Code to represent teacher discourse chronologically to understand how they facilitated GS activities. This method enables a graphic representation of the chronology of discourse, allowing an understanding of how it changed over time [7]. Figure 3 and Figure 4 describes Chin and Judy’s discourse as they occurred respectively. The top line of each figure indicates the time period of every teacher-directed phase (Table 1). The line of the figure depicts a single category with the incidence of teacher discourse in that category represented along the horizontal line. Each action is represented using a bar code.



Figure 3. Chronological representation of Chin’s discourse



Figure 4. Chronological representation of Judy’s discourse

Generally speaking, both Chin and Judy did enact the lesson plan with some fidelity. They spent almost the same time at the beginning phase of orientation and introduction of the activity (P1), and the last phase of evaluation and students presentation (P5). But the patterns of two teachers orchestrating the activity are different. At the orientation phase (P1), Chin made the goals of the GS-based activity explicit. Rather than assigning the task directly, she spent 5 minutes in introducing the RES and helping students to recap other related skills for argumentative essay writing. Judy, however, spent about 7 minutes to talk about the existing phenomenon of plastic surgery and to give examples in daily life. Judy spent a lot of time seeking to arouse the students’ interests of the topic discussion, but without making the goals of the activity clear to students.

Figures 3 and 4 indicate that Chin spent more time than Judy at phase 2 of activity (P2). When students were brainstorming reasons for the phenomenon of the popularity of plastic surgery, Chin said “If your group has posted sufficient ‘reasons’, now you need to group these given reasons. Do remember to think of the five perspectives mentioned in ‘Five Fingers’ that we have learnt”. After the students had completed the first phase of the activity, Chin selected some of the group works to provide comments and further explanations (see Figure 3). However, Judy did not asked her students to categorize their brainstormed ideas and she seldom provided improvised feedback at the class level, though, like Chin, she kept passing between groups and monitoring the state of group work as well.

Below figure 5 visualizes the differences between the number of instances of Chin and Judy’s discourse occurring in each category. It is observed that Judy spent more time on task introduction than Chin. In other words, both teachers gave their task instruction clearly to ensure students follow the designed procedures, but Chin’s introduction was more concise. Compared with Judy, Chin managed class time more strictly, and she praised and encouraged her students more frequently. The similarity is that both encouraged students to

do FTF discussion to improve their ideas consistently, and to give comments/suggestions for others at the group or class level. Except for the number of providing protocol, there is no obvious difference in category 2. Judy liked to provide more specific instructions regarding to the GS group work protocol. For example, she required each group to pick a different color to represent their group. She thought this might help proceeding round robin smoothly. This could potentially cause students losing their individual identity. In contract, Chin preferred that group students could generate their own group protocol.

The most significant difference between Chin and Judy’s enactment discourse can be found in category 3. Chin helped students make clear the learning objective and make explicit the connection between the meaning of collaborative writing activity design and learning content, rather than merely gave commands for students to follow procedures automatically. This sort of discourse often happened at the beginning of the activity in Chin’s class (figure 3). She used this approach to help students to complete subsequent phases of the activity effectively. This result is consistent with findings drawn from students’ feedback, that students from Chin’s class had a better understanding on the objective of the designed collaborative writing activity. The difference between two teachers’ enactments in this category is probably one of the main reasons leading to the difference of students’ performance in the subsequent writing between two classes.

As for category 4 & 5: Help students master language knowledge & improve cognitive skills, there is not much difference on the discourse frequency between two teachers. Both teachers’ instructional discourse did not focus on correcting grammatical or syntactical errors. They sought to scaffold students’ cognitive development and problem-solving approach. The difference exists in the timing of providing scaffoldings. Chin monitored the progress and quality of group work and reacted immediately, whereas Judy concentrated her explanation and assessment when students had completed the activity thoroughly.

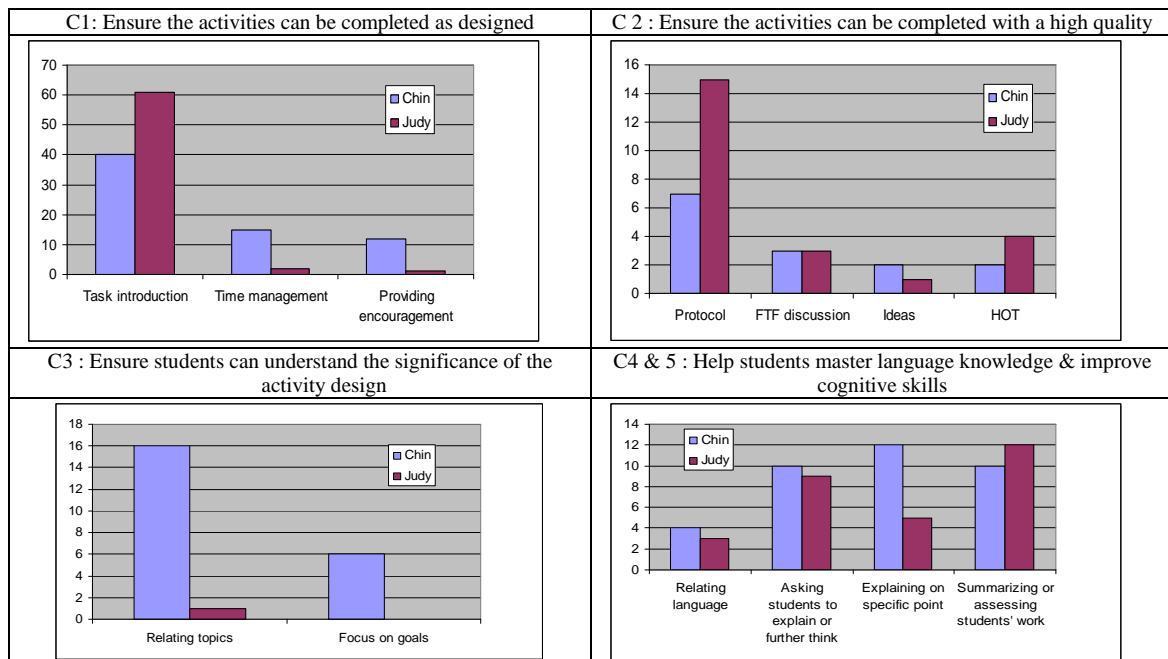


Figure 5. Frequency chart comparing Chin and Judy’s discourses

6. Conclusion and Limitations of This Study

This study pointed out three major differences in the enactments of lessons of two language teachers. Firstly, the learning objectives and the connection between the skills the purpose of writing

activity design and learning content, were made explicit in Chin's class, whereas it was not evident in Judy's class. Secondly, Chin was able to improvise teaching in the light of dynamic formative feedback from students' group works at each phase of the activity. Judy, however, commented students' group work only at the end of the activity. Thirdly, Chin strictly controlled the time of each segmented activity and consistently encouraged and praised students. Although Judy also did well at the beginning trying to arouse students' interests in participating in the activity, she neglected to maintain this enthusiasm. The results suggest that language teachers should 1) articulate the objective of the collaborative activity on language learning explicitly; 2) provide improvised formative assessment and scaffolding to support students' cognitive development and problem-solving in student working process, rather than being entangled on correcting grammatical or syntactical errors; 3) control the tempo of the activity and maintain students' enthusiasm.

There are limitations in this study that need to be addressed in further research. For example, this study focused on analyzing the differences of enactments between two teachers. The commonalities between them are not been taken into consideration, though they may influence the effects of the enactment. The present comparative study is conducted under the assumption that two teachers have the similar beliefs about student language learning after a series of professional development sessions. We acknowledge that the teachers' perceptions about the students as well as their knowledge and beliefs about learning influence their enactments. Thirdly, due to the page limit, we are not able to present the details about the process of students' collaborative learning in relation to the teacher's instructional discourse.

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