Collaborative Languaging for L1 Learning in a CSCL Classroom via Group Scribbles: An Exploratory Case Study

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Abstract: A micro-generic case study has been conducted to explore students' collaborative languaging practices in a CSCL L1 classroom. Descriptive analysis shows that students were highly engaged in the collaborative task and their group work was efficiently coordinated, during which required linguistic forms of accuracy and appropriateness were constructed, so did the related linguistic knowledge. This reveals the significance of collaborative languaging and technology intervention to enhance learning in L1 classrooms.

Keywords: Collaborative languaging, L1 learning, CSCL, case study

Introduction

Social-Cultural Theory endorses the significance of language in human cognitive development. Complex cognitive functions (e.g. problem-solving) are mediated by semiotic tools, among which language is the predominant [4]. Recent literature advocates conceptualizing learner language use as both the "process" and the "product" of cognitive activities [19]. When producing language, learners are engaged in meaning making, constructing tangible artifacts for further reflection [13]. Swain [13] proposed the concept of "languaging", "a dynamic and never ending process of making meaning and shaping knowledge and experience through language use", to describe cognition involving language. Thoughts are emerged, expressed and transformed in words [18]. Rendering thoughts into language is a process where thinking reaches a new level of articulation [11]. As evidence accumulates, languaging being a legitimate source for learning is recognized. In existing literature, self-explanation has proved enhancing scientific concept learning [2]. Collaborative dialogues and private speeches in natural conditions are positive to L2 development, so do the elicited "self-dialogues" in forms of immediate reports, think aloud, and stimulated recalls [15]. Written languaging (including typed texts) also fosters learning [12]. Yet, in a CSCL L1 classroom, students' languaging practices are inadequately examined. This study is intended to contribute to this topic.

1. Research Context

In our design-based research, we are investigating how to improve students' L1 (English) learning in secondary schools via integrating a network technology, Group Scribbles (please refer to [10] for GS introduction). As learning is socially grounded and mainly internalized via language [8], collaborative languaging about language, i.e. "learners work together to solve linguistic problems and co-construct language or knowledge about language" [17],

has been identified as the pathway to L1 learning and encouraged in our intervention. Collaborative languaging is also the target for analysis in that cognition which is dialogically derived can be observed directly in learners' linguistic interactions in problem-solving tasks [5] and that it can be captured as natural and intact in real classroom settings [17]. This paper explored students' collaborative languaging via GS (i.e. what did students language about in collaboration? how did students language in collaboration?) and the role of networked technology intervention via a micro-genetic case study.

Our partner school provides 1:1 networked computing environment and students are comfortable and competent with ICT-mediated learning. English GS lessons are implemented in a Grade 2 class of 22 students who were randomly distributed into 5 groups each of 4-5. In GS lessons, students each was provided a MacBook and seated face-to-face in physical proximity. Interaction over dual spaces (online + F2F) was supported. The lesson reported here was on the module of Persuasive Writing where students wrote an argumentative essay on the topic of Cyber Bullying. The GS activity designed focused on essay planning (Table 1). Considering task difficulty and student capacity, scaffolding prompts in a graphic organizer were provided on Group Public Board (Figure 1). The except chosen for examination was on Content Organizing and Linearizing, an important and difficult phase in argumentative essay writing [3]. We selected one group (Figure 2), whose group product was assessed as the best, as the case for analysis. The data included group artifacts, group audio and video transcripts, individual student Morae transcripts. Student GS act and verbal talk was comprehensively and chronologically documented in transcripts.

Table1. Collaborative Learning Activity: Persuasive Writing

Activity	Description	Time
Introduction	Teacher shows a video clip about Cyber Bullying	5mins
Content Generation	Intra-group interaction: brainstorm to mine ideas\ arguments \ examples	10mins
	Inter-group interaction: Gallery walk-visit other groups' boards for more ideas	5 mins
Organization & Linearization	Intra-group interaction: 1) select, categorize, synergize and arrange contents 2) devise thesis statement \topic sentences	20mins
	Inter-group interaction: Presentation-present group work and offer comments	10mins

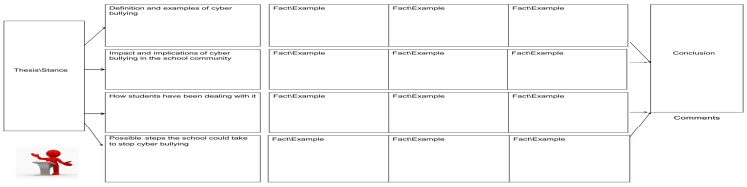


Figure 1. Graphic Organizer on Group Board

Fiona	Kim
Michael	Peter

Figure 3. Group sitting arrangement

2. Data Analysis and Discussion

The focus of analysis was on the ***Area*** and the ***Type*** of collaborative languaging occurred. For Area, we examined the problems the group encountered and executed via languaging: whether they were engaged in constructing linguistic forms\knowledge (Language Bound Languaging, LBL), Group Coordination, or Off-Task interactions. As LBLs are beneficial to language development [16], we further studies the Type of LBLs (how languaging was achieved) and its relation to the interactional medium. The categorizing framework used in Kuouzi [7] in examining individual learners' private speech in learning a grammar concept (Voice in French) was translated into this study (Table 2). One turn in conversation or GS text on one scribble was coded as a unit. Each unit was then tagged by ***Medium*** and ***Area***. LBL unites were further coded by ***Type***.

Table 2.1 Area of collaborative languaging

Category		Description
Language Bound Languaging (LBL)	Language (LBLL)	Group members language to construct the group product (e.g. topic sentence). e.g. -- *Cyber bully has negative impacts on the…*
	Language Knowledge (LBKL)	Group members language to construct language-related knowledge (vocabulary, schematic, etc) that helps constructing the group product. e.g. --*Overlook means you just ignore. Oversees means take charge.*
Group Coordination Languaging (GCL)		Group members language to coordinate group work (e.g. negotiation of working procedures or inviting for assistance). e.g. -- *Skip that first.*
Off-Task Languaging (OTL)		Group members language about off-task topics. e.g.--*What?…(laughing)*

Table 2.2 Type of collaborative languaging (LBL)

Category	Description
Repetition (R)	Group members repeat (parts of) the previous neighboring languaging unit. e.g. -- *On school. On the school community*. --*On the school community*
Integration (I)	Group members, apart from repeating (parts of) the previous neighboring unit, introduce new thoughts. e.g. --*Is like, I think it's like… --I think it's like the summary*.
Elaboration (E)	Group members, repeat the previous unit(s) (not the neighboring one)and introduce new thoughts e.g. -- *Cyber bullying has a lot of negative impacts* … -- *But you emphasize on the negative part ok, because…*
Formation (F)	Group members introduce new thoughts not occurred before in the languaging sequence. e.g. -- *I think we should separate both terms out , cyber and bully. Cyber is the virtual world-*

2.1 Area of collaborative languaging

In the 20-minute activity, the collaborative task was completed successfully with 11 sequences constructed (1 Thesis, 4 Topic sentence, 6 Example\Fact) (Figure 3). In total, 209 languaging units were observed and only 2 (1%) was on Off-Task interaction, suggesting active participation and equal contribution of students in group work (Table 3).

In solving the complex linguistic problem, students came across difficulty and divergence in developing conceptual knowledge on stylistics (*thesis statement*) and vocabulary (word connotations: *ability vs skill vs knowledge vs maturity; overlook vs oversee*). Through 26 languaging units (12.4%), they constructed and improved understanding on these concepts. In Vygotskian interpretation of mind, scientific concepts develop from spontaneous concepts (existing forms) and the merging of the two underlines concept maturation and cognitive development [9]. In L2 learning, languaging on individual basis will help learners mediate between known linguistic forms and the conceptual system [7]. In our study, languaging in a collaborative manner also contributed to the evolution of scientific concepts in L1. As scientific concepts transform spontaneous ones, making them structured and conscious [8], the attainment of linguistic concepts will bring about improved language use.

The other LBL units (141, 67.5%) were devoted to constructing linguistic forms. Through F2F and online languaging, ideas on Cyber bullying were organized and translated into language. Languaging in collaboration enhanced language learning by improving accuracy in grammar (e.g.:-Fiona: GS text Cyber bullying has a negative impact **to schools** and the school should take action*;* -Peter: "*On school. On the school community.*") and vocabulary (e.g.:–Kim: "*Some students are able to deal with the problem, its deal or-*"; Peter: "*Deal with, deal with the problem.*"), all good to language development.

In the learning activity, group coordination was efficiently achieved through verbal talk. Analysis of the 40 units (19.1%) showed that students were brave to express "Don't Knows" (e.g.-Fiona: *"So what…I didn't know how to write a thesis statement."*) and willing to seek

peer assistance (e.g.-Fiona: *"Can you take it done?"*). Scaffolding prompts were found useful in directing group focus. One reading over a prompt made the group immediately focus on that particular piece of problem and initiated the pooling of ideas (e.g.-Kim: "*Ok, never mind. Let's come back. Possible steps that school should take to stop cyber bullying*").

2.2 Type of collaborative languaging

Further analysis of LBL reveals the prevailing repetition of previous neighboring unit (Repetition + Integration=126 units, 75.49%) (Table 4). This was probably attributed to the vast adoption of F2F languaging at intra-group level. As verbal talk is of temporal logic, the included old information served as the anchor in conversation, enabling students to track and continue the topic. Besides enhancing collaboration, repetition, which denotes a deep level of reprocessing as learners realize that the langauging introduced is not thoroughly comprehended, also contributes to improvement in L1 proficiency (though learners are not involved in cognitively complex work) [7]. Apart from absorbing ideas from others, contributing own ideas was also found necessary for effective collaborative languaging. This was indicated by the titanic number of Integration units (117, 69.6%), compared with the sheer amount of pure Repetition (10, 6%). Though differ in L1 proficiency, personality and preference of interaction medium (Unlike others inclining to verbal talk, Michael worked primarily online), students made active contribution to the construction of language of validity, accuracy and persuasiveness in collaboration.

2.3 Medium for Collaborative Languaging

F2F interaction was the dominant (92.8%), both in group coordinating and LBLs (especially in LBKL). It was probably due to the strategy adopted in group work. In the beginning, students agreed to firstly verbally discuss over and decide on the linguistic form, and then to use GS texts to record it. The strategy was chosen very likely by taking into account of proximity in physical distance, richness of social cues and lightweight interaction in F2F. Yet, the spontaneous production of verbal talk often resulted in "slips of tongues" and its logic of temporality frequently caused production blocking and called for clarification, all slowing down the working process. So when the time issue arose (e.g.: Fiona: "*…we are too slow, really slow…*"), online interaction increased as it permits paralleled expressing and processing of ideas. Moreover, when producing written language, one is more conscious about the accuracy and appropriateness of the language, reducing the time for correction. Thus besides recording and consolidating collective knowledge, the new medium is also good for presenting ideas, especially when the time constraint exits. This was supported by the dominating Formation in LBL units via GS (GS:72.7%; F2F: 7.2%).

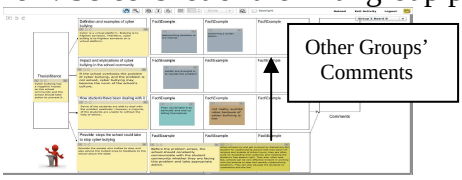
Table 3. **Area** of collaborative languaging units

Area	LBL		GCL	OTL
	LBLL	LBKL		
F2F	60.3%	12.4%	19.1%	1%
GS	7.2%	0%	0%	0%

Table 4. **Type** of Language Bound Languaging units

Type	R	I	E	F
F2F	6%	64.7%	14.4%	5.9%
GS	0%	4.79%	0%	4.2%

Figure 4. Screenshot of the final group product



3. Conclusion

In this paper, a micro-genetic case study has been performed to explore students' collaborative languaging practices in a CSCL L1 classroom. In analysis, students were observed as actively participating and engaged in collaborative learning where they successfully construct linguistic forms and knowledge, all good to L1 development. From this analysis, we better understand the significance of enriching collaborative languaging for L1 development and engaging networked technologies to foster languaging in classroom settings. However, considering the scope and specificity of the study, any application of the conclusions to other learning scenarios should be done with caution.

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