Homepage making and interaction:
Effects of technology-driven collaborative task on social interaction and L2 writing

ホームページ作成とインターアクション：
テクノロジーを介した共同活動がもたらすインターアクションと L2ライティングについて

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　社会文化理論（Vygotsky, 1981）によると、インターアクションとは学びの上で、必要不可欠な要素としている。そこで、4、5名によるグループで英作文を執筆させ、執筆した論文を集めホームページを作成するタスクを 37 名もの日本人大学生に実施した。タスク前、タスク中、そしてタスク後に 3 つのアンケートが実施され、学習者らによる自身の英作文能力の向上について答えてもらった。また、タスク中の模様をビデオ並びにデジタルレコーダーに収録した。タスク前・タスク後の学生各自執筆による英作文も集められ、Nation（2005）の Vocabulary Range Programme によって語彙分析がなされた。その際、「最もグループ内のインターアクションが活発だったグループ」と「最も活発でなかったグループ」の 2 グループに焦点を当てた。

　アンケート結果によると、グループワークが自身の英作文能力の向上に貢献している、と答える学生が多かったが、インターアクションが活発でないグループメンバーはグループワークを煩わしく捉えている者が多かった。実際収録された会話は主に英語（L2）であったが、テクノロジー関連用語が必要な時並びにグループ内で L2 使用を拒否するメンバーがいる場合は母語（L1）になることがあった。

　Range Programme の分析結果では、インターアクションが活発だったグループ並びにインターアクションに乏しかったグループ両方ともがタスクを通じて英語語彙能力を向上させていることが分かった。よって、グループ内でのインターアクションは全般的に英作文能力に貢献しているようで

あるが、グループワークをマイナスに捉えている学生らにとって、学生間の交流は必ずしも自身の英作文能力の向上に必要不可欠なものではないようである。学生間の交流がどのような場面でどのように外国語学習に作用しているかを、今後も引き続き考察してくことが望まれる。

1. Introduction

Foreign writing instructions, or any writing instructions for that matter, have often assumed and relied on isolated language activity, leading learners to acquire the language and writing styles in particular, autonomous ways. Therefore, it has been a common practice to regard written products as something of individual creations, static and devoid of connectedness between the writer and the environment.

However, this paper adopts a more dynamic perspective in which writing is appreciated and understood as a complex, interconnected, emergent phenomenon which is inherently contextualized (Larsen-Freeman & Cameron, 2008). That is, learners are not passive, invariant entities but rather as agencies that influence each other's learning trajectories. Simply put, learners influence each other via interaction, and the shape of such interaction is largely determined by the context in which they are immersed.

Furthermore, it is hypothesized that a technology-driven *collaborative* writing exercise would give rise to a new transformation of human action (Warschauer, 2005), thus there is a need to investigate how this is actualized and affect language learning. In this study, collaborative patterns and their effects on L2 writing are investigated, focusing on the group dynamics and the emergent language use among the group members. Specifically, the following research questions are asked:

  1) How does interaction unfold in a group activity?
  2) What roles do students play in scaffolding each other's learning? How is the role ascribed to each student?
  3) How does technology intervene and shape the group interaction?

4) What are the crucial mediating artifacts students rely on to successfully complete their task?

5) How is student affected by group interactions in terms of his/her actual writing, specifically vocabulary use, as well as perception towards writing and L2 in general?

In order to investigate the above, we turned to works on various SLA literatures, including those discussing L2 writing, in particular peer review studies, computer-assisted language learning (CALL), complexity theory, and socio-cultural theory (SCT).

2. Theoretical Framework

This study identifies language learning as a multifaceted, complex system that can be best described as social, dynamic, organic, connected, temporal, and context-dependent (Larsen-Freeman & Cameron, 2008). In order to investigate this open system, we turned to the discussions on socio-cultural theory and its relation to second language acquisition (Lantolf, 2000; Lantolf & Thorne, 2006; Lantolf & Poehner, 2008).

The integral part of socio-cultural theory is its emphasis on social interaction (Vygotsky, 1981). Vygotsky's general genetic law of cultural development holds that higher forms of thinking appear twice, on two different "planes": first on the intermental plane –that is, between individuals or between an individual and a mediating artifact–, and the second on the intramental plane – internalization by the individual. In more specific terms, this internalization process is a "historical" one (Lantolf & Thorne, 2006) in which what is internalized is determined by the past experiences of the learner. That is, the learner's ontological development together with phylogenetic and microgenetic development give rise to a particular learning outcome. This in turn implies that the experience of the present determines the future developmental trajectory. In essence, the quality of past interactions shapes the

development of the present, and combined with that, the present interaction shapes the future development. Therefore, provision of abundant fruitful interaction is indispensable in fine learning.

Furthermore, according to socio-cultural theorists, a learner can display two levels of performance. One is performance by the individual alone. The other is a higher-order performance by the same individual but afforded by assistance, known as scaffolding. This notion of two sets of display of knowledge is often referred to as the zone of proximal development (zpd). By comparing the two, we are able to determine the capacity in which an individual can benefit from interaction and mediation provided. This degree of capacity to detect and incorporate useful information for completing tasks is said to represent the person's cognitive abilities. We believe that the emergent higher-order cognitive processing occurs via interaction not only between teacher-student dyad, but also among peers. For this reason, a group activity was introduced in this study to investigate the scaffolding effects among students as well as the mediating artifacts that the students utilize in order to reach the higher cognitive state (Villamil & Guerrero, 1998; 2006). This scaffolding is actualized via peer editing (Hyland & Hyalnd, 2006) and collective problem solving inherent in the nature of the project (i.e., homepage making).

Furthermore, complexity theory (Larsen-Freeman & Cameron, 2008) addresses the adaptive nature of agents in learning, including teachers and students. This notion can be further applied to activity theory (Engeström, 1999) that deems agency and outcome to be determined by social factors, including mediating artifacts and social rules. That is, individuals adapt to particular available mediating artifacts and social rules, thus shaping the outcome of the interactions. This adaptation helps to stabilize the social activity system as a whole.

In terms of "mediating artifacts", many elements can be identified in writing tasks, but in our paper we focus on the verbal interaction among group members engaged in a group writing activity. It is predicted that

output from others provide cognitive as well as linguistic tools for the learner to use in organizing thoughts and incorporating oral discourse into one's own writing. That is, students appropriate and operationalize what they have learned from others in their own discourse, therefore in their own writing (Swain, 2000; Wells, 2000).

We take this notion one step further and investigate how the incorporation of technology, a form of mediating tool, possibly affords unique ways language learners interact (Warschauer, 2005), thus giving rise to a unique form of learning how to write.

In addition to an emergent, unique socialization pattern created by technological instruments, according to Warschauer (1997), computer-mediated communication (CMC) assigns an active and autonomous role to language learners, allowing them to engage in authentic tasks in which they can initiate discussions and make decisions for the real audience. This is said to empower the students and motivate them to learn. We wished to see how this empowerment unfolds by closely examining language learners in an EFL setting in Japan via homepage making task.

3. Methodology

Thirty-seven advanced EFL sophomore students at a Japanese university participated in a semester-long writing and homepage building task. Of the 37, six were males and the rest females. Students were divided into groups of four to five students, grouped according to their sub-majors (e.g., Asian studies, International relations, British studies, Linguistics, European study). They were instructed to produce a 10-page academic paper based on a topic of their choice within the area of their sub-major. They were then instructed to put these papers together to make a "book", each paper comprising a chapter in the book. They were to add a collaboratively-written introduction and conclusion chapters to make the book complete. The final step was to

convert their writings into a homepage by using a homepage building software, in this case Adobe Dreamweaver. Three class sessions, spread over the semester, were devoted to work on the project. During that time, instructors let the students work autonomously without teacher interventions. The student interactions during the three sessions were audio- and video recorded: The first session took place on October 22, 2008, and lasted for 51 minutes, the second on November 12 and lasted for 54 minutes, and the third took place on November 19th for 71 minutes.

There were several purposes for introducing this webpage creation task:

1) To create a task in which students must collaborate in order to produce the final product. This assured abundant interaction among group members;

2) To introduce technology with which they are unfamiliar and therefore meaningful to learn. At the same time, their unfamiliarity guaranteed discussions among group members in completing the task;

3) To assure authenticity in the task, both in terms of writer and readers. The students were free to choose a topic that was of their interest. Their work was to be read by a real audience who would be genuinely interested in their topic.

It was hoped that the concept of real audience for the texts they produce would motivate them and allow them to enjoy a sense of authorship. In this project, the students were not practicing tedious writing exercises for a mere fulfillment of a course. Rather, they were writing about something they were interested in, and for a real purpose – a process that required their agency (Warschauer, 2005), and we believed that technology, in this case homepage, allowed the possibility to actualize this.

In order to investigate the students' changes in perceptions in terms of their English writing competence and their reactions toward collaborative group work, three questionnaires in total were disseminated throughout the study. The first questionnaire (Appendix

A), which inquired about the students' expectations and concerns about the webpage project, was administered in the week of October 15, 2008, the second in the week of November 19, and the last in the week of January 14, 2009. The content for all three questionnaires are similar to assure comparison. Their writing samples before and after the task were also collected to identify improvements in writing.

We have further compared the pre-treatment writing sample and post-treatment sample within a group in order to observe how collaborative activity had conduced to individual change in word use. For pre-treatment, students were asked to produce 400-word essay describing the mistakes they have made in the past from which they have learned a lesson. For the post-treatment essay, they were asked to reflect on the overall experience of having done their homepage presentation and to produce minimum 250-word essay. The two topics were chosen as they both deal with personal account of their past experiences, thus eliciting comparable sentences. Simultaneously, two webpage writings, which are written by groups having different types of interaction pattern, were compared in terms of vocabulary use to examine the inter-group differences. These essays were fed into Nation's (2005) Range Programme. By doing so, the fed-in text was compared to the General Service List (GSL) (West, 1953) and Academic Word List (AWL) (Coxhead, 2000) to determine the number of word tokens as well as word variability in terms of word family are contained in the actual texts. Three ready-made lists based on GSL and AWL are available in the Range Programme. The first BASEWRD1.txt includes the most frequent 1000 words in English. The second (BASEWRD2.txt) includes the second 1000 most frequent words, and the third (BASEWRD3.txt) includes the words not in the first 2000 words of English but which are frequent in upper secondary school and university texts in a wide range of subjects. All of these base lists include the base forms of words and derived forms. Words that are not contained in Basewrd 1 through 3 are categorized in the "Not in the List" category.

4. Findings

We used three different data sources to explore our research questions:1) video recordings; 2) questionnaires; and 3) actual pieces of student writing.

4.1 Video recorded data

The video- and audio recordings revealed how the student interaction was extensive in some groups, having to attend not only to linguistic forms but also to technological demands made by the task. We have focused in particular on one group given that:

1) other group interactions were not as extensive as this group;
2) the group consisted of returnees and non-returnees, creating a hybrid group;
3) gender makeup of this group was relatively even, consisting of two boys and three girls.

This group, which we will refer to as Group 3B, includes two male students, Hirotaka and Koji, and three girls, Ayumi, Kanako, and Mariko. All names are pseudonyms. Of the five, three are returnees: Ayumi, Hirotaka, and Mariko.

Table 4.1. Profiles of students

No.	Name	Gender	Returnee?	Period abroad	Countries
1	Ayumi	F	Yes	15 years	Hong Kong / Saudi Arabia / Italy / South Africa / Hungary
2	Hirotaka	M	Yes	5 years	Britain
3	Kanako	F	No	NA	NA
4	Koji	M	No	NA	NA
5	Mariko	F	Yes	2 years/ 4 years	Singapore/ America

We have discovered how one non-returnee student in particular, Koji, adamantly refuses to use L2 (i.e., English) in class, despite initiatives made by his fellow group members. In particular, we find the two returnees, Ayumi and Hirotaka, initiating L2 interaction as much as possible, yet Koji is reluctant to follow them. In the following excerpt, students are trying to decide on the overall title of their web pages, but they struggle to reach a consensus:

Excerpt 1 (Oct. 22, 2008) [ ]: English translation, ***=inandible speech

1. ***Hirotaka:*** I think the book title would be *The English language*.
2. ***Everyone:*** (laugh)
3. ***Mariko:*** Straight forward.
4. ***Hirotaka:*** Uh. They've got history, variations… and ,uh…
5. ***Mariko:*** variation.
6. ***Kanako:*** second language acquisition.
7. ***Hirotaka:*** effects on Japanese people and so on.
8. ***Mariko:*** Um…I think it's, yeah, related to the second language
9. acquisition too.
10. ***Koji:*** これ？ [This?]
11. ***Mariko:*** うん、じゃないかなあ？ [Yeah, I think]
12. ***Koji:*** でもとらえ方によっては、[but depending on how you interpret it]
13. ***Mariko:*** うん。[Yeah]
14. ***Koji:*** 普通に日本語で言っちゃうけど、[I'm just going to say it in
15. Japanese]
16. ***Mariko:*** うんいいよ (Laugh) [Yeah, that's fine]
17. ***Everyone:*** (laugh)
18. ***Hirotaka:*** No, no, no, in English, in English (laugh).
19. ***Koji:*** こっちでやるさ、English history ってのはさ、こう広いスパン
20. 見た [English history which we study over here, seen in this wide
21. span...]…
22. ***Mariko:*** うんうん。[Yeah, yeah]
23. ***Hirotaka:*** 英語史じゃないですか。[English history – sounds good]

24. ***Mariko:*** はい。[Yes]

25. ***Hirotaka:*** かなり広い。[Quite wide]

26. ***Koji:*** 長い何百年もかけて。[Took hundred of years]

27. ***Mariko:*** ですね。[Right]

28. ***Koji:*** で、勝手な解釈なんだけど、English loanwords in Japaneseって

29. うのも、[And it's a selfish interpretation but calling it English loanwords

30. in Japanese is]

31. ***Mariko:*** うん。[Yeah]

32. ***Koji:*** その特に日本の中でこう、英語の語彙が増えてきたっていうのは

33. [In Japan, how English vocabulary increased]

34. ***Mariko:*** うんうん。[Yeah, yeah]

35. ***Koji:*** こう、なんだろう、まあ英語だけじゃなくて他の、外国語の言葉

36. も増えてきたのはイメージで、開国してっていう歴史がある中でこう

37. どんどん入ってきて、特にこういうパソコンとか、そういう言葉って

38. 特に近代の、こう事実関係があったからこう入ってきたって勝手な

39. 解釈をすれば、[Um, how would you say it, well not only English

40. but other foreign languages seem to increase too, and since Japan

41. opened up to be exposed to these, there was a surge of influx, for

42. example words like, "personal computer" came in recent years,

43. given these facts and if I were to give a selfish interpretation]

44. ***Mariko:*** すごい。[Wow]

45. ***Ayumi:*** Ah.

46. ***Kanako:*** Ah.

47. ***Koji:*** ちょっとヒストリカルな…[A bit historical]

48. ***Mariko:*** たしかに、はい。[For sure, yes]

Koji's L2 interjection immediately impacts the group dialogue, switching from L2 to L1. The adamant adherence to L1 on the part of Koji however is odd, given that he himself has expressed his overuse of L1 to be "unfortunate" (Koji, Questionnaire 2). In the following excerpt, Koji begins the dialogue by using L1, but Hirotaka attempts to make a switch back to L2, which is flatly refused by Koji:

Excerpt 2 (Oct. 22, 2008)

1. ***Koji:*** だから、全体で行けば、たぶん、どのようにして英語が発達して
2. きて、たとえばシンガポールとかどのような影響を与えてきて、
3. で、さらに近代日本でどのような影響を与えてきて、で、日本の教育
4. でどうなっているかみたいな。[So, overall, probably, how English
5. was developed, like in the case of Singapore, what kind of influence
6. has it produced and in recent years how it has influenced Japan,
7. and what is happening in Japanese education. Something like that]
8. ***Ayumi:*** へぇ。[Oh]
9. ***Kanako:*** ああ。[Ah]
10. ***Mariko:*** なるほど。[I see]
11. ***Hirotaka:*** もう一回言って。[Could you say one more time?]
12. ***Mariko:*** (laugh)
13. ***Koji:*** いやだ。[No]
14. ***Hirotaka:*** Could you say, could you say that please (laugh)?
15. ***Koji:*** いやだ。[No]
16. ***Hirotaka:*** Could you say that in, in English?
17. ***Koji:*** No.
18. ***Everyone:*** (laugh)
19. ***Koji:*** No.
20. ***Hirotaka:*** え、いいの、No って言っちゃって (laugh)？[Uh, it's
21. okay to say no?]
22. ***Kanako:*** (laugh) ... ビデオとってる [Being video taped]
23. ***Everyone:*** (laugh)
24. ***Koji:*** ああ ...[Yeah]
25. ***Hirotaka:*** He says, no (laugh).
26. ***Everyone:*** (laugh)
27. ***Koji:*** まぁ [Um]... something like that
28. ***Hirotaka:*** Something like that.
29. ***Ayumi:*** OK.
30. ***Kanako:*** OK.
31. ***Ayumi:*** So, we need to decide, like… more specific…

The pattern continues in the following excerpt, where Ayumi begins by using L2, to which Koji responds by using L1. Ayumi's persistent efforts are overtaken by Mariko's interjection, which is also in L1:

Excerpt 3 (Nov. 19, 2008)

1. ***Ayumi:*** Koji's paper was brilliant (laugh)
2. ***Koji:*** え、なに？[Oh, what?]
3. ***Ayumi:*** Yes, I, I can easily understand your…
4. ***Koji:*** あのさ、具体例ばっかりでうざくない？[Um, isn't it annoying
5. to have so many examples?]
6. ***Ayumi:*** But, uh, ***
7. ***Koji:*** あんま主張してなくない？[Don't you think I'm not making a
8. statement?]
9. ***Ayumi:*** Ah.
10. ***Koji:*** まあ最後がね [Well, perhaps the end]
11. ***Mariko:*** 英語学で主張って難しいよね。[It's difficult to give a
12. statement in English studies]
13. ***Ayumi:*** 難しいよね、最後のコンクルージョンでなんか、your opinion
14. が [It's difficult, in the last conclusion, like, your opinion is]
15. ***Koji:*** そうそうそう。[Right, right, right]
16. ***Ayumi:*** 入ってきたのが良かった気がするけど。[It was good that
17. it was introduced]
18. [snip]
19. ***Ayumi:*** え、ここはじめの方に、なんか…なんだっけ…これ thesis
20. statementだよね、***   Japanese language contains both positive
21. and negative effects って書いてるから [Uh, here at the beginning, like...
22. what was it...this is thesis statement, right?***It says that Japanese
23. language contains both positive and negative effects, so]
24. ***Koji:*** うーん。[Ummm]
25. ***Ayumi:*** なんか、両方主張してるみたいな、感じ。[It's as if you are
26. giving two opinions]
27. ***Koji:*** あ、だから、これは、事実なわけさ。[Oh, so these are the facts]

28. ***Ayumi:*** ああ。[Ah]
29. ***Koji:*** but これ以降が [but after here]
30. ***Ayumi:*** ああ。[Ah]
31. ***Koji:*** え、納得？ [Oh, you get it?]
32. ***Ayumi:*** たぶん。[Probably]
33. ***Koji:*** え、大丈夫？… じゃあもうちょっと考えてみる。[Oh, it's
34. okay?...then I think I will think a bit more]
35. ***Ayumi:*** なんかここも but people had better make use of loanwords
36. ってところも…[Here is also like, where it says but people had
37. better make use of loanwords]
38. ***Koji:*** Had better より…should do?... なんか、だから利用するみたいな。
39. [Had better is better than should do? Therefore, it is used.
40. Something like that]
41. ***Ayumi:*** ああ、そういうことか……なんか、examples がわかりや
42. すかったです [Oh, I get it...it was easy to understand because of
43. the examples]
44. ***Koji:*** ああ。[Oh]

This excerpt is particularly important, as here Ayumi is commanding Koji's fine piece of work. While his vehement reaction in Excerpt 1 and 2 signals his reluctance to work as a group, Koji later reveals in the final questionnaire how he came to deem collaborative group work to be conducive to learning. This might be in part due to the positive comments received from his fellow group members.

In contrast to Koji, according to the responses in her questionaire, it was apparent that Ayumi continuously valued peer feedback as well as interaction among group members. Her appreciation also appeared in her utterances. In the following excerpt, Ayumi is consulting Kanako about the agreement between a subject and its verb.

Excerpt 4 (Nov. 19, 2008)
1. ***Ayumi:*** Ah, "is" だね、そうだね。[Ah, it's "is", right.]

2. ***Kanako:*** うん [Yeah]
3. ***Ayumi:*** たしかに。"Number" だもんね。[Right. Because it is
4. "Number"]
5. ***Kanako:*** うーん。[Ummm]
6. ***Ayumi:*** I need more peer review.
7. ***Kanako:*** うーん。[Ummm]
8. ***Ayumi:*** うん。[Yeah]
9. ***Kanako:*** Yeah…
10. [snip]
11. ***Kanako:*** maybe "people" is ?
12. ***Ayumi:*** "people" ?
13. ***Kanako:*** Yeah.
14. ***Ayumi:*** Mm.
15. ***Kanako:*** Because, we… like…どうしよっかな…[What should I do]
16. ***Ayumi:*** Mm.
17. ***Kanako:*** Mm.

Beside consulting about grammatical points, Ayumi also seeks advice about the content of her paper:

Excerpt 5 (Nov. 19, 2008)
1. ***Ayumi:*** Mm… (change topic) do you think my conclusion, was,
2. like, kind of, OK? …like uh…
3. ***Kanako:*** Mm… *** going to include your opinion, but,
4. ***Ayumi:*** Like…
5. ***Kanako:*** It's like, a, history.
6. ***Ayumi:*** History… mm.
7. ***Kanako:*** So… mm… we have to add your opinions more, and
8. more…
9. ***Ayumi:*** Mm… like I wrote about like how English, is , gained
10. like, like, uh, uh, like advantages
11. ***Kanako:*** Mm.

  12. ***Ayumi:*** To the… to the colonized, countries,

  13. ***Kanako:*** Mm.

  14. ***Ayumi:*** so I wrote about like, like advantages of that, the… like,

  15. about South African, English, and like, uh, Australian English,

  16. and, uh, Hong Kong

  17. ***Kanako:*** Hong Kong.

  18. ***Ayumi:*** Like, Hong, English in Hong Kong (laugh)

  19. ***Kanako:*** (laugh)

  20. ***Ayumi:*** Uh, so like, how those, uh… like, affect them, like a most,

  21. like a lot of books like wrote about bad things about colonization,

  22. ***Kanako:*** Ah, so, you can say that, like…um

  23. ***Ayumi:*** Uh.

  24. ***Kanako:*** Uh, like…

  25. ***Ayumi:*** But I think I wanted to focus on the good part because

  26. like we, like uh,

  27. ***Kanako:*** Ah.

It is important to note here that the absence of Koji allows the group to carry on with L2 conversation successfully throughout their interaction.

However, Koji should not be solely blamed for the prevalent L1 use in group discussions. In the following excerpt, we discover that the discussion takes place largely in L1, despite Koji's absence and Hirotaka's effort to initiate L2 output:

Excerpt 6 (Nov. 19, 2008)

  1. ***Mariko:*** とりあえずなんか作ってみる？ [Shall we try making

  2. something anyway?]

  3. ***Hirotaka:*** うん [Yeah]

  4. ***Mariko:*** あれか。 [Oh, that]

  5. ***Hirotaka:*** 英語しゃべろっか。 [Let's speak in English]

  6. ***Mariko:*** ん？ [Um?]

7.   *Hirotaka:* 英語でしゃべろっか。[Let's speak in English]

8.   *Mariko:* そうだね。[Okay]

9.   *Hirotaka:* Uh…

10. *Mariko:* How do we decide the design… do we hand write it first,

11. then, or…

12. *Hirotaka:* I think we can, discuss, like, how we are actually

13. going to make it, and then ?

14. *Mariko:* Ok, yeah.

15. *Hirotaka:* どうしよっか [What should we do?]

16. *Mariko:* What style…what kind of style ってことだよね？ [It's

17. about what style...what kind of style]

18. *Hirotaka:* Mm. とりあえず、なんか…title page があって、[In the

19. meantime, there's something...title page]

20. *Mariko:* うんうんうん。[Yeah, yeah, yeah]

21. *Hirotaka:* でなんか…エンターキー、エンター、エンターして、[And

22. like, enter key, enter, you enter]

23. *Mariko:* うん。[Yeah]

24. *Hirotaka:* なんか、たとえば、[Um, like]

25. *Mariko:* あ、homepage ってこと？ [Oh, you mean the homepage?]

26. *Hirotaka:* そうそう。うん。[Right, right. Yeah]

27. *Mariko:* Ok.

28. *Hirotaka:* イントロ、イントロで、1，2，3，4，5，こうやって、コン

29. クルージョンも全部。[Intro, for intro, 1,2,3,4,5,like this, conclusion

30. and all]

31. *Mariko:* We, do we have like, overall, intro?

32. *Hirotaka:* Yeah, we do.

33. *Mariko:* This?

34. *Hirotaka:* No, No, No, it's, it's like a , えっと、なんていうの、本で

35. 言う最初のページみたいな[Um, how would you say, like the first

36. page in a book]

37. *Mariko:* あぁ、なんか…index みたいな？

38. *Hirotaka:* そうそうそう、in, index index, index があって、それの

39. ほうよくない？ [Right, right, right, there's in, index index index,
40. isn't that better?]
41. *Mariko:* うん、確かに。[Yeah, for sure]
42. *Hirotaka:* で、そこから、ちょっとたとえば、イントロのリンクとか
43. があって [And from there, for example, we set up a link for our intro]
44. *Mariko:* うんうんうん。[Yeah, yeah, yeah]

What is striking about this excerpt is that the content of discussion is technical, and we see frequent code-switching (i.e., title page, enter key, intro, conclusion, index). This signifies how the students lack the L2 vocabulary needed in order to carry on an entirely L2 conversation.

4.2 Questionnaires

The questionnaire results revealed how most (but not all) students perceived collaborative work to be effective in improving their quality of English writing. For example, in the case of Group 3B, all students did acknowledge the usefulness of collaborative task but another group, Group 1A, did not. A member of Group 3B, Hirotaka, expressed his joy working as a group the most, although he also acknowledged how peer reviewing was not an easy task. He wrote:

> Peer reviewing as well as discussion in group meetings (have contributed to English learning)...Before the project, I didn't know some of the ghroup members well. Through the project we worked together t ocomplete the task, so now I can communicate with those members more freely. (Hirotaka, Questionnaire 3, Original in English)

Mariko shared her joy in working with others as well:

> When we talked about the overall introduction and conclusion, I learned how each person have [sic] their own writing styles. It

was interesting to share ideas and complete one conclusion...I enjoyed to [sic] talk with group members about how each other's topics are related, and enjoyed working together to create one work. (Mariko, Q3)

For Ayumi, the benefit of working as a group provided mechanical as well as moral assistance:

When I exchanged essays with my group members for proofreading, I learned about grammatical and structural mistakes from each other...I involved [sic] a lot with my group members. I took frequent contacts with them to complete this project...we worked well with each other, so I enjoyed discussing with my group members. It was great when we saw the final outcome of our work. I enjoyed learning new things from others. (Ayumi, Q3)

The importance of receiving moral support from other members is also mentioned by Kanako:

Our group members are very kind and cooperative, and so I could get over a lot of tasks by being encouraged by them. (Kanako, Q3)

Even Koji, who appeared to prefer working individually, wrote:

In-class meeting there we could read things other people wrote was most enjoyable part of the project. (Koji, Q 3)

While peer review was mentioned by Hirotaka, Ayumi, Kanako and Koji as an important aspect of group work, they also expressed the difficulties in proofreading others' essays. Mariko wrote:

> When we do peer review, I tried to make changes correctly, but sometimes, I was afraid I make mistakes in correcting the paper which results in worsening the quality of other people's paper. (Mariko, Q 3)

While the mechanics of writing were deemed to be corrected via peer review, the increase in vocabulary knowledge was attributed as a by-product of individual as well as group work. For example, Ayumi wrote:

> To write about the English language and colonization, I read many books in English. Some books contained difficult words, but gradually I found them readable. I think it enhanced my vocabulary. (Ayumi, Q3)

On the other hand, Kanako wrote how group output provided valuable input for expanding vocabulary:

> Reading their (i.e., other members') papers was profitable for my English learning because they sometimes use difficult words or phrases, and so I learned varieties of English writing (Kanako, Q3)

This appreciation for others is crucial for Kanako, as earlier she had expressed her discouragement with L2 vocabulary in texts:

> It was hard for me to look through books written in English because they sometimes mentioned technical terms. (Kanako, Q2)

Her uneasiness in terms of L2 vocabulary is, interestingly, not mentioned in the first questionnaire. Instead, she noted how computer-

related issues were most worrisome. This worry of hers is later dissipated, largely due to the contribution of Hirotaka, who has taken on the responsibility of putting together the webpage.

In fact, Kanako's lack of confidence in L2 performance, especially that of oral performance, is replaced by the end of the project with greater confidence in L2 writing. Initially, Kanako wrote:

> I have never studied English in foreign countries, and so my English may be unnatural occasionally. Besides, I am not used to speaking in English in public, so I'm worried about a presentation. (Kanako, Q1)

but later she claims:

> I came to realize that I can write and tell people what I want to express in English to some extent. (Kanako, Q3)

In this project, this act of "writing for an audience" is endorsed on two different levels: having one's work read by fellow group members, and having one's work read by an authentic online audience.

However, in contrast to Group 3B, Kayoko in Group 1A expressed how she deemed their task to be primarily individual, and the most benefit was gained via individual reading and writing:

> Through this project, I learned how to research and write tons of work over a very short period of time. Working with computers and in a group did not emege [sic] because writing the paper was practically individual work...Revising our own work is pointless. I think that the teacher should revise. (Kayoko, Q2)

Kayoko's fellow members did indicate benefits of peer review, but another member, Yuri, did mention how she would prefer the instructor

to provide the final proofreading:

> Exchanging first drafts (has contributed to the improvement of L2)...(but) I wanted more feedback form teacher. For example, after writing first draft, I wanted some advice to improve the paper and write a good final draft. (Yuri, Q3)

Therefore, while the response towards peer review was relatively positive, some students still seem to deem writing to be an individual activity that needs corrections made specifically by the teacher.

4.3 Writing–Vocabulary

The comparison of pre- and post-treatment writings of Group 1A and 3B shows the possibility of how different types of interaction affect students' internalization and future application of newly learned vocabulary. Table 4.2 illustrates the results of the intra-group comparison of vocabulary use in accordance with the RANGE programme developed by Nation (2005).

Table 4.2. Pre-treatment writing vs. Post-treatment writing of Group 3B

	Ayumi		Kanako		Mariko	
	Pre-treatment	Post-treatment	Pre-treatment	Post-treatment	Pre-treatment	Post-treatment
Basewrd 1	88.44%	87.50%	83.75%	87.55%	82.86%	86.17%
Basewrd 2	6.78%	5.53%	4.50%	6.23%	11.50%	5.96%
Basewrd 3	1.76%	3.69%	5.25%	2.33%	1.74%	4.26%
Not in the list	3.02%	3.28%	6.50%	3.89%	3.90%	3.62%
Total	398	488	400	257	461	470

	Koji		Hirotaka	
	Pre-treatment	Post-treatment	Pre-treatment	Post-treatment
Basewrd 1	82.03%	85.16%	84.85%	86.83%
Basewrd 2	7.37%	4.35%	8.33%	5.11%
Basewrd 3	5.07%	5.10%	2.53%	5.65%
Not in the list	5.53%	5.40%	4.29%	2.42%
Total	434	667	396	372

Note. Basewrd 1, 2 and 3 are categorizations used in RANGE

It is observed that Mariko and Hirotaka showed similar tendencies of vocabulary use: their use of Basewrd 1 (i.e., 82.86% to 86.17% for Mariko; 84.85% to 86.83% for Hirotaka) and 3 (i.e., 1.74% to 4.26% for Mariko; 2.53% to 5.65% for Hirotaka) increased, their Basewrd 2 use decreased. Ayumi, on the other hand, decreased the use of Basewrd 1 and 2, but increased 3 (i.e., 1.76% to 3.69%). Hirotaka's use of Basewrd 3 did not show great change; however, he decreased the use of Basewrd 2, and increased 1. Kanako's change was outstanding; She reduces the use of Basewrd 3 and increased 1 and 2.

Result of the coding texts by RANGE, specifically the use of Basewrd 3, illustrates that Ayumi, Mariko and Hirotaka used less frequent words in their writing *after* the collaborative activity (i.e., 1.76% to 3.69% for Ayumi; 1.74% to 4.26% for Mariko; 2.53% to 5.65% for Hirotaka), while Koji showed only a small increase in his use of Basewrd 3 (i.e., 5.07% to 5.10%) and Kanako used more frequent words after the activity (i.e., 5.25% to 2.33%). It is possible that certain interactions, peer review or peer feedback within the collaborative activity influence each other, and some students could successfully internalize the peer scaffoldings but not others.

Table 4.3 shows the differences of vocabulary use in pre- and post-treatment writings of Group 1A. Although both groups 3B and 1A had intensive interactions concerning the contents of their writings, language uses as well as web design, Group 1A conducted their interaction mostly in their L1, and the group members regarded the importance of interaction within their group differently. Therefore, it is possible to assume that the differences in their emphasis on interaction and interaction pattern affect their collaborative writing as final products.

Table 4.3. Pre-treatment writing vs. Post-treatment writing of Group 1A

	Kayoko		Naomi		Reiko	
	Pre-treatment	Post-treatment	Pre-treatment	Post-treatment	Pre-treatment	Post-treatment
Basewrd 1	NA	88.21%	86.82%	87.16%	87.69%	88.92%
Basewrd 2	NA	4.94%	5.72%	1.80%	7.25%	2.15%
Basewrd 3	NA	3.42%	1.24%	5.41%	4.15%	5.23%
Not in the list	NA	3.42%	6.22%	5.63%	6.74%	3.69%
Total	NA	263	402	444	398	325

	Eri		Yuri	
	Pre-treatment	Post-treatment	Pre-treatment	Post-treatment
Basewrd 1	86.68%	89.87%	88.53%	89.08%
Basewrd 2	5.78%	3.38%	6.23%	2.39%
Basewrd 3	3.52%	4.64%	0.75%	3.75%
Not in the list	4.02%	2.11%	4.49%	4.78%
Total	398	237	401	293

Note. Basewrd 1, 2 and 3 are the categorizations used in RANGE. Kayoko did not submit her pre-treatment writing, hence it is indicated as "NA".

In this group, all members increased the use of Basewrd 3. Again, this group had less interaction in L2 compared to Group 3B; however, all of them increased their use of less-frequent words in their post-treatment writings.

5. Discussions

The analysis of the written products supports the perceptions made by the learners, suggesting that, in addition to conveniences and innovations technology is associated with, technology creates an additional venue for interaction (Warschauer, 1997) which in turn contributes to the expansion of the learner's zone of proximal development (Vygotsky, 1981) and thus affecting learning. However, in order to tie this learning to L2 learning, it is suggested that L2 vocabulary and expressions unique to technology are introduced *prior* to the group task. This is because, as we have discovered, technology-related L2 vernacular is missing in EFL students, and this lack forces them to revert back to L1 despite their efforts to use L2.

Another important issue of concern is the over-emphasis on oral L2 competence on the part of language learners. As we have seen, the two non-returnee students, Kanako and Koji, have expressed their lack of confidence in terms of their oral L2 performance, and their claim that immersive environment in L2 is indispensable in order to enhance one's L2 learning. Koji especially disclosed his reluctance, and even fear, to speak in front of others. This led him to refuse any L2 discourses, thus disrupting the L2 flow among group members. However, the findings indicate how both Kanako's and Koji's confidence level in L2 writing is elevated at the end of the project. Since L2 oral proficiency, as opposed to L2 literacy skills, is a more obvious competence that can readily be "assessed" in interaction (McKinley & Sakamoto, 2007), students are prone to evaluate their own and their peer's L2 skills based solely on oral skills. However, with an introduction of a group writing task, non-

returnee students were given opportunities to display and share their writings, which led to the collective celebration of the quality of the learners' L2 skills which normally remain unnoticed.

This group activity also included an authentic component, where the written products (i.e., web pages) were designed with readers worldwide in mind. Their writing was not a mere assignment but a tool to convey what they knew and wished to share with the rest of the world. The authentic readership, as evidenced in Kanako's comment, increased their motivation to write.

While we wish to conclude that enhanced social interaction is a panacea for language teaching and learning, we are unable to make such conclusion, given the very different response we received from Group 1A. This group consisted entirely of returnee students, and their oral as well as written L2 proficiencies were advanced compared to other groups. As in Kayoko's statement, they felt that peer review and social interaction to be largely irrelevant to the improvement of their L2. In fact, Reiko has expressed how she perceived her L2 skills to have deteriorated since returning to Japan from the U.S.

Their writing samples reveal how they managed to produce fine pieces of work despite a lack of interaction. This may suggest how social interaction, while largely beneficial, may not benefit all equally. That is, coupled with negative attitudes on the part of Group 1A members, advanced learners may not accrue benefits from interacting with their peers compared to non-returnee students with more positive attitudes toward group work.

6. Limitations

This study contains several limitations. First, the sample size is too small to reach any definitive conclusion.

Secondly, Kanako's decrease in her Basewrd 3 after the treatment is puzzling, as she is the only one who displays negative effects. We

speculate that this may be due to the differences in paper lengths between the pre- and post-treatment writing samples. She might also have included numerous proper names in her pre-treatment writing, which would be classified as Basewrd 3, but not so in post-treatment writing. This needs further investigation.

Thirdly, it is misleading and even dangerous to think that vocabulary knowledge represents overall writing proficiency. We acknowledge that we have only analysed a small aspect of writing proficiency in this paper and other domains such as grammatical accuracy and sentence complexity also need to be addressed and explored.

Finally, it is also not our intention to represent social interaction as the only factor that affects student writing. We recognize the complexity in fostering writing proficiency, and that other possible factors, such as individual readings done by the learners, have profound impact on students' writing performance.

7. Conclusion

Interactive group projects such as the web project introduced in this paper seem to induce peer review, and through interactions students are motivated to write further. Their confidence level seems to be largely affected by collective celebratory nature inherent in group project. In these respects, instead of adhering to individualistic writing activities, group work may produce positive effects on EFL writing performance.

However, we also note how the appropriation of mediating tool is not uniform across all EFL learners. In fact, some learners made very little use of social interaction to improve L2 writing. This varying degree of benefits accrued from social interaction may be due to the learner's attitude towards group work as well as their attitude towards other group members, but this calls for further investigation.

Finally, technology seems to add one extra layer to the need to communicate among group members, but in order to support and

sustain this L2 initiative, L2 vernacular specific to technology should be introduced to the students in advance. Without such explicit instruction, students are unable to make full use of what L2 interactions have to offer.

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Appendix A

Name: _____

Date: _____

English Composition Writing 202 (A, B)
Webpage Project Pre-Treatment Questionnaire

This questionnaire is distributed to collect your feedback in terms of your own language learning process through the webpage project. Thank you very much for your time and effort in completing the questionnaire. Please be as specific as possible, detailing your answers. Thank you for your cooperation.

1) In participating in the project, what are your worries? Please try to be specific (e.g., instead of saying "My English writing is poor", be specific as to what aspect of writing is poor and give examples).

[English-related issues]
_____
_____
_____

[Group dynamics issues]
_____
_____
_____

[Computer-related issues]
_____
_____
_____

[Other issues]
_____
_____
_____

2) Of the above, which one do you predict to be the biggest problem in completing the web project? Why?
_____
_____

_____
_____
_____

3) On the other hand, what do you think will be your strengths in working on the project?

_____
_____
_____
_____
_____

4) What things do you hope to gain by participating in the project? Please be specific.

_____
_____
_____
_____
_____

5) Do you think your interaction with your group members will be largely in Japanese or in English? Why?

_____
_____
_____
_____
_____

Thank you for your input!