Conversation Analysis of a Mind Mapping Discussion Preparation Activity
Hugh Kirkwood

ABSTRACT

Mind mapping activities may help students prepare ideas for subsequent speaking activities. This study uses conversation analysis to examine the different forms collaboration can take during a mind mapping preparation activity. However, the findings reveal that responses to appeals for vocabulary and spelling were the most common examples of collaborative actions that occurred. The paper concludes with recommendations for teachers considering the use of mind mapping in EDC.

INTRODUCTION

Mind mapping activities can be used in English Discussion Class (EDC), a compulsory course for all first-year students at Rikkyo University, to provide a balance between a focus on meaning and a focus on language forms (Kirkwood, 2018). Mind mapping can be completed alone, but can also be completed in pairs or in groups. Collaborative mind mapping affords more student-to-student interaction, which is a hallmark of both the EDC course (Hurling, 2012) and communicative language teaching (CLT) generally (Allwright, 1984). In addition, student-to-student interaction is a form of peer interaction, which Oxford (1997) states is also promoted by many proponents of collaborative learning. These proponents claim peers can support each other when performing tasks that they couldn't do by themselves, which in turn leads to the learning that enables individuals to become able to complete those tasks later (Oxford, 1997).

Both CLT and collaborative learning theories emphasize the importance of social activity in learning rather than top-down transmissions of knowledge from teacher to student (Jacobs & Farrell, 2003; Oxford, 1997). Oxford (1997) describes how proponents of collaborative learning refer to the social activity that supports others as they complete tasks as *scaffolding*. This term has its origins in Vygotsky's work in developmental psychology in which he refers to a zone of proximal development (ZPD), a term he used to describe the total range of learning that people can achieve according to their developmental stage when given assistance from teachers and others in their environment (Oxford, 1997). However, it should be noted that Vygotsky did not state that social activity alone led to the development of knowledge, he stressed the importance of children's development of the ability to represent the world symbolically and the importance of these representations in facilitating interactions (Vygotsky, 1978). Similarly CLT stresses the importance not only of student-to-student interactions, but also on the tenet that these interactions should involve the exchange of information that is meaningful to the students involved (Jacobs & Farrell, 2003). Mind mapping activities may involve spoken exchanges of meaning during the activity, but the creation of a visual representation of meaning on the board is also a symbolic activity in itself (Suchman, 1988). Therefore, following a perspective that combines CLT with collaborative learning theories, the collaborative creation of mind maps could be an activity well suited to the discussion preparation stage of EDC lessons because it aims to scaffold the exchanges of meaningful ideas both during and after the activity.

Nevertheless, before uncritically adopting mind mapping as a Discussion Preparation activity in EDC, two important considerations should be made. The first is to examine if collaboration in the activity really does occur and that students are not working on generating ideas independently. If collaboration does occur, the second is to consider whether the collaboration really does assist students as they exchange meaning and generate ideas in the

preparation activity. Teachers should be aware of perspectives that suggest collaboration may not assist individuals attempting to complete a task in all situations. For example, when describing the ZPD, Vygotsky (1978) describes a situation of adults assisting children in the mastery of certain actions. The term scaffolding was coined later by educators who additionally emphasized the ability of people with similar abilities to help each other solve problems and complete tasks (Oxford, 1997). Research by Tudge (1992), however, seems to give more support to Vygotsky's earlier emphasis on more experienced individuals providing support to those with less experience. This research, which compared individual children's attempts to solve a puzzle involving a balance beam with the attempts of pairs of children, found that while children with less familiarity with the puzzle benefitted from being paired with more experienced partners, children in pairs of a similar ability level performed worse than individual participants. Collaborating with less experienced partners also was found to have had a detrimental effect on the performance of children with more experience (Tudge, 1992).

To explore the issues raised above, this study will analyze data taken from a preparation activity where students were set the task of creating a mind map of the advantages and disadvantages of working for a big Japanese company. In the context of a lesson about social issues in Japan, the purpose of this activity was to raise students' awareness of the importance of thinking about both the advantages and disadvantages of a position and also to prepare students with the ideas and vocabulary required to have a discussion about making changes to Japanese corporate culture.

The research questions in this study are:
1. Do collaborative actions occur in the mind mapping activity?
2. If collaborative actions do occur, what form do they take?

METHOD

To investigate collaborative actions, a conversation analysis (CA) approach was deemed most appropriate for its focus on actions, or how the purpose of "talk is always *to do* something" (Toerien, 2014, p. 329). To focus on what people do with talk, Toerien (2014) describes how CA begins with the creation of detailed transcriptions of recorded interactions. These transcriptions are then analyzed following the stages of *collection-building*, *individual case analysis*, *pattern-identification*, and *accounting for or evaluating your patterns* (Toerien, 2014).

Video recordings are preferred for CA because they enable transcribers to see non-vocal acts of communication and gain understanding of the occurrences in the silent parts of recordings (Toerien, 2014). Including non-vocal aspects in the transcriptions was of particular importance in this study because the goal of the preparation activity was for the students to collaborate in creating a visual representation of ideas to aid in a subsequent task. When deciding on participants, I chose classes where I felt the students would be able to generate a sufficient number of ideas in the five minutes allocated to the activity without having to resort to asking me to check their vocabulary or spelling. The rationale for this was that I did not want my own interactions to interfere with the participants' peer-to-peer collaboration after the activity had started. I decided that a sufficient number of ideas would be at least one original idea per participant. This was based on my experience of teaching the activity that led me to predict that some participants would be very quick to generate multiple ideas early on in the discussion; however, since these ideas would often be the ideas that the class would find to be most obvious, other students would be likely to spend a larger proportion of the five minutes thinking and receiving support. All the participants were L1 Japanese speakers.

I initially made video recordings of five classes' interactions during the mind mapping activity, but I later found three of my five recordings to be unusable for CA. Many of the

participants' vocal interactions were whispered and my video camera's microphone was not sufficiently powerful to record them. In the final two recordings, I attached an IC recorder to the camera that made most of the vocal data intelligible. However, a negative consequence of this was that the IC recorder wire restricted my camera placement, which led to me miss some of the non-vocal interactions. Of the two groups that I found possible to transcribe, one group had four members and the other group had seven.

A transcription method derived from Jefferson (2004) and Toerien (2014) was used to analyze the usable recordings. See the appendix for the notation symbols used. I tried to be as thorough as possible with these observations, attempting to describe the participants' movements, expressions, creation of representations and other uses of their body during the activity. However, modifications were made to accommodate the different conversations and actions that often occurred simultaneously. The main alteration that I made to the Jeffersonian system was that I organized the transcript rows by the action start times rather than by turn order. I also added the notation of using double greater-than symbols (>>) to indicate which participant or participants individuals were responding to or directing speech at. My system of transcription is shown in Figure 1, which was created from a screenshot of part of one of the sheets I created in Microsoft Excel. It is important to note that while my system moves away from CA transcription conventions, the system contains the information required to recreate transcriptions organized by speaker turn from selected portions of the data and these extracts are used to illustrate findings described in the later sections of this paper.

	Action Start Time	A1F	A2F	Participants A3F	A4M
3	01:26	((Moves to the left side of the board, picks up marker))	((Moves to the left side of the board, picks up marker))	((Moves to the center of the board, starts to pick up marker. Her position is closer to A1F and A2F than A4M))	((Picks up marker, starts to move to right side of the board. He positions himself about 40cm away from A1F, A2F, and A3F))
4	01:28	((Draws a line running to the top left of "Advantages". Starts writing. Stops writing, puts lid on marker))	((Draws a line running to below "Advantages". Starts writing))		
5	01:30	˚(e S no ato) high salary wa nan dake:˚ >>A2F		((Looks at A1F and A2F))	((Looks at A1F and A2F))
6	01:31				
7	01:32			((Quickly glances at A4M as A4M starts his action))	((Looks at "Disadvantages" and raises marker))
8	01:33				((Draws a line from "Disadvantages" going up and to the right.
9	01:34		A1F>> (e S no ato wa) A(.)L-(A) >>A1F		

Figure 2. Screenshot of transcription data.

Another complication encountered in transcribing was that participants often used Japanese when making requests for help or providing assistance. Due to the simplicity of these requests I

usually had little difficulty transcribing or understanding these usages, but in some cases I had to resort to reading my transcription attempts to a native Japanese speaker to check their feasibility and meaning. When in doubt about utterances, I followed Jefferson's (2004) convention of putting the utterances within single ellipses.

After transcribing my recordings, I started collection building. Collections are "instances, collected together by the research, of an interactional phenomenon" (Toerien, 2014, p. 311). This process involves making inductive judgments from the data about which instances are suitable for inclusion in a collection (Toerien, 2014). In this study, this meant considering the degree to which the interactions involved actions that scaffolded other's efforts to complete the preparation activity. To build my collection, I printed out my transcriptions onto paper and highlighted each interaction that suggested collaborative behavior related to the mind mapping. As I did this, I made a note of the degree to which I was certain the interaction involved this collaborative behavior and the features of the interactions that led me to make this judgment. Recognizing these features is required for the subsequent steps of performing individual case analysis and pattern-identification.

RESULTS

The upper rows of Table 1 shows the number of interactions in each recording that suggested collaborative behavior. The uppermost row shows interactions that most clearly appeared to scaffold other's efforts to prepare for the task. The row below shows instances where the interactions could arguably be described as involving scaffolding, but it was not clear from the results of the interactions if they contributed to the completion of the preparation task. Underneath these interactions I listed some actions that as recorded normally appeared in isolation, but particular instances suggested that they may have been involved in scaffolding the completion of the preparation task through influencing the participants' cognitive processes. These features were self-talk and gazing at others' activity or written ideas. It should be stated that in Recording B, however, several instances of gazing might have been missed due to the poor camera placement.

Table 1. Collections of Possible Collaborative and Supportive Actions

	Number of collaborative actions	
	Recording A (four participants)	Recording B (seven participants)
Interactions with clear collaborative actions	5	6
Interactions with less clear collaborative actions	4	5
Instances of self-talk	5	5
Instances of gazing	14	18

With regard to the first research question, the results clearly indicate that there are instances of collaborative actions in the mind mapping activity. With respect to the second research question, the forms that they take will be discussed in the next section.

DISCUSSION

The case analysis stage of CA involves asking questions about which features in a speaker turn, or a sequence of speaker turns, contribute to the analyst's perception the turn, or sequence of turns, is performing the action the analyst has attributed to it (Toerien, 2014). Toerien (2014) suggests that "[a]s you carry out your case analyses, you should also note comparative features" (p. 332) and these comparative features should lead to the identification of patterns in collections. In my recordings, most of the interactions that I could most easily identify as collaborative involved one

participant giving another participant information they lacked. This missing information was normally the translation of a Japanese word or the spelling of an English word. In almost all of the instances this information was given after a request for help from the recipient. The extract below shows a clear example of this. The notation symbols used is described in the appendix.

1:30	Participant 1:	˚(*Ē* S *no ato*) high salary *wa nan dake*:˚ [[Um… what comes after S in high salary?]]
1:34	Participant 2:	(*E* S *no ato wa*) A(.)L-(A) [[Um. A-L-A comes after S]]

In less frequent instances (two instances in Recording A and one in Recording B) participants did not request missing information but sought validation from others that their word choice or spelling was correct. I assigned these to the "less clear" category because I was unsure if such validation counted as scaffolding. One such instance is provided below.

2:16	Participant 2:	More skills(.) Get more skills. ((Participant 2 pronounces "more skills" in a way that sounds like "mosuke"))
2:18	Participant 1:	*U?* [[Uh…]]
2:19	Participant 2:	More skills. Get(.) [more ski::
2:21	Participant 1:	[*Ā* OK. ↓˚*Hai hai*˚ [[Oh. It's OK. Gotcha.]]

In my transcriptions, there were only two instances when participants appeared to have provided information directly to another participation without a request being made first. However, both of these instances are questionable. The first of these, from Recording A, is questionable because the first word of the exchange was unintelligible. The second of these interactions, from Recording B and shown in the example below, is questionable because it is unclear if the speaker is providing new information, requesting information, or a combination of both actions.

1:45	Participant 1:	((Looks back at the board and pauses with her marker raised))
1:46	Participant 7:	˚*Hasan shinai*˚ [[It won't go bankrupt]]
1:48	Participant 1:	((Looks back at Participant 7)) ˚*Ka*(.)*ke*(.)*nai*˚ [[I can't write that]]

While Participant 7 appears to offer a suggestion prompted by Participant 1's inaction, it becomes clear in the subsequent interactions that he does not know how to translate *hasan*. Therefore Participant 7 may also be making a request for missing vocabulary. Eventually after the intervention of other participants and the use of a smartphone dictionary application, the term was translated as "go out of business". The example below also shows that this pattern can be reversed, as a request for help can also become the source of another's information.

0:04	Participant 5:	((Starts writing "worker need better skill" below and to the left of "disadvantages".))
0:25		((Looks back to the participants standing behind)) Skill *te* stro:nger *ka?* [[Is it stronger skill?]]
0:27	Participant 2:	*A: sore mo* advantage *de kaite ii kana:* [[Oh. I think that could also be written in the advantage section]] ((Starts to write "workers can get skill"))

One final category of collaborative actions should be mentioned: in this category, an

interaction clearly followed the pattern of providing information after a request, but I could not label it as clearly providing scaffolding to others because the information provided was incorrect. As exemplified in the transcription below, the action actually resulted in the participant making the request becoming less able to contribute accurately to the activity. This was because the interaction led to confusion and resulted in the participant modifying an accurate contribution into an inaccurate one. This result appears to parallel Tudge's (1992) findings that in certain situations collaboration can adversely affect the completion of a task.

3:56	Participant 7:	((Turns to the board to start writing and then takes a deep breath and turns around as if troubled. He next turns back to the board without saying anything and starts to write "employ))
4:03		((Turns around to Participant 5 with a smile)) Employ *no ato wa dō kana:* [[Hum… what comes after employ?]]
4:06	Participant 1:	°E-E ja nai:° [[Isn't it E-E?]]
4:09	Participant 5:	Em:=
4:10	Participant 1:	=[E-E:
	Participant 6:	=[E(.)E?
4:11	Participant 7:	((Turns back and starts to write an "e" before employ))

In Table 1, I chose to list self-talk and gazing, which typically did not occur as parts of interactive sequences because I suspected these actions were contributing to the participants' completion of the mind maps. One example of this evidence is found in the third extract, where Participant 7's observation of Participant 1 led to a suggestion. The extract below also appears to show a participant reacting to another's self-talk. However, in most cases I had little evidence that these actions contributed to any interactions.

5:13	Participant 2:	((Finishes writing, puts lid on marker. Starts shaking))
5:16		°Disadvantage:° ((Self-talk))
5:22	Participant 1:	*Ē*:: ((Looks to the right)) °( )° OK:(.) °Disadvantage:°

The final stage of CA, accounting for and evaluating patterns, involves contemplating how the patterns identified in collections handle or provide solutions to certain situations (Toerien, 2014). In the case of this study, this involves contemplating why most of the collaborative actions were prompted by requests. Personally, I do not feel the main answer to this question to be particularly revelatory, however, as it appears to be common sense that without hearing a request individuals are unlikely to be aware of the information that peers require and lack. Nevertheless, identifying and cataloguing how students collaborate on a mind mapping task will hopefully inform teachers' decisions to use such an activity in their own classes. The present study found requests regarding vocabulary and spelling to be the most common type of collaboration when seeking help or providing assistance. Unexpected variations in the patterns also show that the boundaries between seeking help and providing assistance may not always be clear. The third extract above shows that requests may be hidden in offers of assistance and the fourth extract shows that requests themselves may provide others with the information they require.

CONCLUSION

There are two main sources of limitations for this study. The first is that I collected only a small amount of data. I was able to transcribe some interactions that suggest gazing and self-talk may play roles in collaboration, but without more transcriptions I was unable to identify or account for

any clear patterns. I also suspect having a small set of data also contributed to my inability to record any clear examples of written interactions being used in collaboration. The second source of limitations is with the CA method itself, as it is not designed to investigate emotions or intentions (Toerien, 2014). For example, I can suspect that Participant 7 wanted to know how to translate "*Hasan shinai*" into English when he made the suggestion, but I have no way of confirming this by following a CA approach. These limitations could be offset somewhat by using a CA approach with a larger number of recordings or taking a mixed methods approach, in which other qualitative methods such as interviews or surveys are used to ask participants about their intentions during the activity.

There are also issues with the relating CA's focus on specific interactions to broader social issues such as gender inequality (Toerien, 2014). In watching the recordings and creating the transcriptions I noticed that participants stood closer to and interacted more with other participants of the same gender, but I could not identify any recorded interaction that could offer insight into this state of affairs. Such research would probably require a combination of CA with other methods of investigation.

In response to the research question "Do collaborative actions occur in the mind mapping activity?" my analysis suggests that collaborative actions clearly occurred in several instances. However, there were also instances where collaborative actions were attempted, but did not lead to scaffolding. Other actions such as gazing or engaging in self-talk may have also contributed to collaboration, but require more data to be investigated. In response to the question "If collaborative actions do occur, what form do they take?" the clearest answer is that they normally occurred in response to requests for vocabulary or spelling. In one case, a request of this type could scaffold others' ideas; however, most of the observable interactions were not related to the activity's goal of preparing students for a discussion through the collaborative generation of ideas and a focus on the form of balancing advantages with disadvantages. In one case the activity also led to collaborative efforts that disrupted a participant's ability to generate ideas. These findings suggest that mind-mapping activities may not always be appropriate for use as discussion preparation activities in EDC lessons. Teachers should carefully consider the needs of students before using this activity. While the activity may be appropriate if students are struggling with the vocabulary required to express ideas, if there is a need to focus on ideas alone, there is limited evidence from this study that mind mapping will be useful.

Critics of the mind mapping activity might also note that much of the collaboration occurred in the participants' L1, which is class time that students did not use in practicing their L2 interactions. While my rationale for not preventing this L1 use was that I wanted the participants to focus on generating ideas at this stage of the lesson, looking at the types of collaborative actions where the participants used their L1 and considering the lack of interactions related to generating ideas, I feel that this was a flaw in my implementation of the activity. If I use the activity in the future, I will teach students, "How do you spell *X*?", "How do you say *X* in English?", and "Is this OK?" to both encourage spoken English use and collaborative actions.

REFERENCES

Allwright, R. L. (1984). The importance of interaction in classroom language learning*. *Applied Linguistics*, *5*(2), 156–171.

Hurling, S. (2012). Introduction to EDC. *New Directions in Teaching and Learning English Discussion*, *1*(1), 1.2-1.9.

Jacobs, G. M., & Farrell, T. S. C. (2003). Understanding and implementing the CLT (Communicative Language Teaching) paradigm. *RELC Journal*, *34*(1), 5–30.

Jefferson, G. (2004). Glossary of transcript symbols with an introduction. In G. H. Lerner (Ed.),

Conversation analysis: studies from the first generation (pp. 13–34). Amsterdam, The Netherlands: John Benjamins Publishing.

Kirkwood H. (2018). Brainstorming for a focus on form. *New Directions in Teaching and Learning English Discussion*, *6*, 114–123.

Oxford, R. L. (1997). Cooperative learning, collaborative learning, and interaction: three communicative strands in the language classroom. *The Modern Language Journal*, *81*(4), 443–456.

Suchman, L. A. (1988). Representing practice in cognitive science. *Human Studies*, *11*(2), 305–325.

Toerien, M. (2014). Conversations and conversation analysis. In *Sage handbook of qualitative data analysis* (pp. 327–340). Los Angeles, CA: Sage.

Tudge, J. R. H. (1992). Processes and consequences of peer collaboration: a Vygotskian analysis. *Child Development*, *63*(6), 1364–1379.

Vygotsky, L. S. (1978). *Mind in society: the development of higher psychological processes*. (M. Cole, Ed. & Trans.). Cambridge, UK: Harvard University Press.

APPENDIX – Transcription Glossary (Adapted from Jefferson, 2004 and Toerien, 2014)

° °	Encloses whispered speech
( )	Encloses speech where the transcriber was uncertain about the content
(.)	A discernable interval of less than two-tenths of a second
:	Represents the extension of a preceding sound
[[ ]]	Encloses English translations of Japanese (this is not adapted from the sources above)
(( ))	Encloses the transcriber's observations of non-vocal actions
[	Marks the start of overlapping speech
↓	Marks a significant drop in pitch
=	Marks the continuation of speech by another speaker
>>	Marks the direction of speech (this is not adapted from the sources above and is not used in the transcription extracts)