

Exploring the L2 learning benefits of digital game-based spoken interaction among Japanese learners of English

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Abstract. This paper describes the initial findings of an exploratory research project investigating the use of the cooperative digital puzzle game Keep Talking and Nobody Explodes as a means to facilitate Second Language Acquisition (SLA). A qualitative case study approach was taken to closely examine the linguistic interaction between three L2 learners of English at a Japanese university who played the game over four one-hour sessions. The findings include clear examples of learners negotiating for meaning and making use of a range of discourse strategies theorised to contribute to effective language learning within an interactionist SLA framework. By demonstrating that the learner-to-learner interaction evoked by this game can set in motion multiple processes linked to L2 development, the results suggest that the game, as well as others that make use of a similar information-gap mechanic, could be effectively put to use for language learning and teaching purposes in a variety of formal and informal educational contexts.

Keywords: digital game-based language learning, discourse strategies, interactionist SLA, negotiation for meaning.

1. Introduction

In order to better understand the practical potential of digital games to facilitate language learning, the current research project aims to provide a detailed analysis of spoken learner-to-learner interaction elicited through a cooperative information-gap puzzle game, a genre that has so far received little attention in the CALL literature but that has been successfully incorporated into EFL curricula in Japan over

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recent years (Dormer, Cacali, & Senna, 2017; Wilson, 2020). Following Peterson's (2006) approach to the analysis of learner interaction in his earlier work on virtual worlds, this study is framed within an interactionist conception of SLA (Gass & Mackey, 2020). This model stresses the importance of ample comprehensible input (Krashen, 1982) and output (Swain, 2005) for L2 development and considers the noticing of gaps in a learner's linguistic knowledge (Schmidt, 2001) and negotiation for meaning to be the key interactional mechanisms by which an L2 is acquired. Negotiation here refers to the process by which interlocutors attempt to repair a breakdown in communication by modifying their linguistic output (Long, 1996; Sheen, 2008). By means of a close analysis of learner output during gameplay, instances of these mechanisms of SLA were identified and categorised in order to provide evidence that games of this genre may be gainfully employed to facilitate peer-based language learning in a classroom, self-access, or informal learning environment.

2. Methodology

A case study group of three undergraduate students at a Japanese public university participated in four play sessions of approximately one hour each. The group consisted of one male and two female learners, all specialising in English Studies and possessing an upper intermediate or advanced level of English proficiency. Two of the learners were L1 speakers of Japanese and the third was an international student who spoke Mandarin Chinese as her L1. The learners played the computer game *Keep Talking and Nobody Explodes*², in which the goal is for players to work together to defuse a bomb before the timer runs out. Each bomb consists of multiple puzzle modules that change from one defusal attempt to the next. One player, the *defuser*, sees the bomb on the computer screen and describes it to the other two players, the *experts*, who have access to the *Bomb Defusal Manual*. The experts cannot see the bomb and must consult the manual for instructions on how to solve each module, which they must then communicate to the *defuser*. This particular game was selected because its design was expected to encourage high levels of learner engagement, a factor conducive to effective language learning (Mercer & Dörnyei, 2020); and also due to the information-gap game mechanic which was anticipated to elicit ample learner output and negotiation for meaning as is the case with similar paper-based activities widely used in contemporary task-based language pedagogy (Pica, Kanagy, & Falodun, 2009).

2. Steel Crate Games: <https://keeptalkinggame.com/>

Video and audio recordings were made of all learner interactions over the four gameplay sessions, during which learners were instructed to speak only in English. The researcher also observed all gameplay activities and took notes throughout. Apart from a short initial orientation on the game's controls, no assistance was provided to learners except on the few occasions when they specifically requested advice. Roughly four hours of recordings were transcribed and an interaction analysis was performed in order to quantify instances and identify pertinent examples of learner-to-learner interactions theorised to facilitate SLA within the interactionist framework. To this end, an original limited coding scheme (McKay, 2006) was developed and utilised to label in the transcripts all instances of negotiation for meaning as well as associated discourse strategies, including confirmation checks, clarification requests, and comprehension checks.

3. Results and discussion

By the end of the first gameplay session, it was clear that the game-based activity had effectively engaged the learners and in doing so elicited a large amount of spoken output. Over the four sessions, learners had cumulatively uttered more than 17,000 words at an average rate of approximately 74 words per minute over almost 5,000 turns. The large amount of linguistic input received and output produced during interaction indicates that the game-based activity holds significant potential for peer-based SLA.

A close analysis of the learner-to-learner discourse revealed 47 instances of successful negotiation for meaning over the four hours of game-based interaction. Almost all such episodes involved a breakdown in communication which was repaired soon afterwards, as the example below illustrates:

Expert 1	Release [the button] when the countdown timer is, has a one in any position.
Expert 2	One.
Defuser	One?
Expert 1	To see the timer, if there any one in it.
Defuser	Ah. Okay.

In this example, the learner who played the part of *defuser* did not understand expert 1's initial instructions for disarming the button module. Expert 1 then modified her output, which successfully repaired the breakdown. It is interesting to note that while clear instances of negotiation such as the above did not occur very frequently during gameplay, learners did make regular use of several discourse

strategies associated with negotiation. By far the most common of these was the confirmation check, of which over a thousand instances were identified and which typically involved a learner repeating an interlocutor's utterance fully or in part, such as in the following example:

Expert 1	Cut the fourth [wire].
Defuser	Fourth?
Expert 2	Yes.

A number of clarification requests and comprehension checks were also identified. While these strategies were used only rarely during the sessions in comparison to confirmation checks, there were approximately 200 other cases where learners modified their own output or that of their interlocutors in order to repair or preempt communication breakdowns, for example by elaborating on or simplifying previous utterances. Such forms of modified output tend to closely resemble the interactions associated with negotiation for meaning and may, therefore, also be conducive to learners noticing gaps in their L2 knowledge.

4. Conclusions

The provisional findings of this study serve as evidence that the digital puzzle game *Keep Talking and Nobody Explodes* can elicit interactions between L2 learners that may facilitate processes of SLA, including negotiation for meaning and associated discourse strategies. These results demonstrate how cooperative digital games based on an information-gap game mechanic can assist processes of language learning and thereby strengthen the case for their use in L2 pedagogy.

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