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Motivation and Participation of Learners in an Online Lingua Franca Exchange

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Abstract

This study examined the motivation of Japanese learners of English who participated in an online lingua franca exchange and also explored the possible interrelations of their motivation and online participation/environment during the eleven-week data collection period of the exchange. The Complex Dynamic Systems Theory was employed as the theoretical framework of the study. Pre and post states of their motivation were measured in relation to ideal L2 self and anxiety by using a 13-item questionnaire, followed by a pre-post comparison conducted using paired-samples *t*-tests. Forum replies written by the Japanese participants were measured quantitatively in terms of word count, number of posts, and to whom the replies had been written. The pre-post comparisons showed a reduced anxiety and an increased ideal L2 self of the participants. The correlations between the participants' replies and their motivation revealed that their participation in the online exchange and the online environment that surrounded the learner may have contributed to their reduced anxiety. The reduced anxiety might also have facilitated further participation of learners. Their participation was also correlated with an increase in ideal L2 self; this suggests that the authentic use of English could have contributed to the clarification of their image of themselves as L2 users.

Keywords: online exchange, lingua franca, motivation, participation, asynchronous computer-mediated communication

Introduction

The Internet has enabled language teachers to transform their classrooms into international and multicultural encounters in an authentic environment where learners are able to learn a language with beneficial and unique learning experiences (Belz & Thorne, 2005; Lewis & O'Dowd, 2016a; O'Dowd, 2007; Warschauer & Kern, 2000). Traditionally, the bilingual-bicultural exchange has been the dominant model of such online exchanges (O'Dowd, 2016, p. 295). Learners from one linguistic/cultural background are paired with learners from another background and teach their native languages to each other (O'Dowd, 2016; O'Rourke, 2007).

On the other hand, there is an increasing number of online exchanges conducted in another format, where L2 learner participants from multiple countries learn a single second language as a lingua franca, without native speakers of that language involved (Lewis & O'Dowd, 2016b). This approach has been increasing, partly because there are not "enough

classes of 'native speakers'" if we want to "provide sufficient partnership for classes based in countries of less commonly spoken languages" adopting the bilingual-bicultural model for all exchanges (O'Dowd, 2016, p. 296).

Given the increasing trend of the latter type at the practice level (O'Dowd, 2016), I introduce a new term *online lingua franca exchange* for the latter type of online exchange, adapting a nearly identical term *lingua franca exchange* mentioned, but not necessarily treated as a target of investigation, by O'Dowd (2016, p. 296). The new category is needed, firstly because exchanges of this type are often different from those of the bilingual-bicultural model in their partnering, in that the former often have more than two parties involved in the exchange while the latter typically allow only two parties and the participants are often native speakers of the target language learned by the other party (O'Rourke, 2007; O'Dowd, 2013). Secondly, partly because of the geographical multiplicity of parties involved and the more limited time frame shared among them due to it, asynchronous computer-mediated communication (ACMC) such as electronic forums is more widely used in this type of exchange than the bilingual-bicultural exchanges, in which synchronous computer-mediated communication (SCMC), especially video conferencing, is increasingly prevalent (O'Dowd, 2016). Thirdly but not the least, using a language as a lingua franca has become more ubiquitous than ever in this globalizing world, especially so in the case of English as a lingua franca (ELF), arguably adding potential to the educational utility of this type of exchange (O'Dowd, 2016; Seidlhofer, 2009).

However, there has been far less research conducted on the outcomes of such online lingua franca exchanges than those done on bilingual-bicultural exchanges (Lewis & O'Dowd, 2016b; O'Dowd, 2016). This study, therefore, examined an online exchange program that was conducted collaboratively using electronic forums (an ACMC tool) in university level EFL classrooms from four countries (two Asian, one Middle Eastern, and one European) in terms of the learners' participation in forums, their L2 motivation, and the interrelation between them.

Theoretical Framework

The Complex Dynamic Systems Theory (CDST) was employed as the theoretical framework of this study and the design of the online exchange program from which the data was collected (Larsen-Freeman & Cameron, 2008; Larsen-Freeman, 2012; Reinhardt, 2012). Traditionally, research on language learning in the context of computer-mediated communication (CMC) was often done from the viewpoint of the interactionist approaches, which see learning as occurring in an interaction where a learner has a negotiation of meaning with their interlocutor (a native speaker in many cases), leading to a meaningful L2 input for the learner (Long, 1983). The main constructs of these approaches are input, feedback, noticing, and output, mostly focusing on one's internal process or that in the brain, hence it is a theory of a cognitive orientation (Reinhardt, 2012). On the other hand, online exchanges

have often been researched from socio-cognitive approaches (Atkinson, 2002; Reinhardt, 2012). These approaches see learning as occurring in a context which mediates one's learning (Lantolf & Thorne, 2006; Lave & Wenger, 1991; van Lier, 2000). Learning is considered inseparable from various ecological resources including the technological tools that surround them affording learning itself (van Lier, 2000). Though socio-cognitive approaches and theories of cognitive orientation are often considered theoretically incommensurable (Reinhardt, 2012), CDST is claimed to offer a perspective that transcends the theoretical gap (Reinhardt, 2012), positing complex adaptive systems, which can be regarded as constituting one's ecology in one sense, but also as one that comprises of multiple agents not only interacting with each other but co-adapting to each other (The "Five Graces Group," 2009; Larsen-Freeman & Cameron, 2008).

CDST is thus expected to provide a more comprehensive perspective for the conceptualization of learning in online lingua franca exchange, where no party provides an absolute model as a native speaker of a target language, unlike interactionist situations (Long, 1983), and instead learning is expected to occur when participants interact with or co-adapt to each other. One's participation such as sending a post addressing someone can incur the addressee's response to the sender or someone else. Mutuality and network would also serve as the basis for various types of learning. Both at the interpersonal and intrapersonal levels, for example, there is not only one-way causation from one's motivation to one's writing behavior, but also consequence of one's writing a post or the writing behavior itself might affect one's motivation (de Bot & Larsen-Freeman, 2011, p. 10).

Although L2 motivation is originated in a different research tradition than CDST, integrative theorization has recently been attempted so that L2 motivation research (Dörnyei's L2 Motivational Self System) and CDST are able to share the same theoretical perspectives (Dörnyei, 2009b; The "Five Graces Group," 2009). Accordingly, in the present study, the interrelation between learners' participation, environment, and their motivation was examined by employing the framework of CDST.

Literature Review

Learner Motivation in CMC

Many studies have been conducted to reveal motivational aspects of L2 learners using various types of CMC with a focus on the medium. However, most of them investigated L2 classrooms where the learners share the same geographical location, similar cultural backgrounds, and sometimes even the same L1 (Arnold, 2007; Poza, 2011; Stockwell, 2013; Ushida, 2005; Warschauer, 1996). The implications of these studies in CMC utility were often positive but sometimes mixed. Warschauer (1996) conducted a questionnaire survey on CMC-related motivation of L2 learners (n = 167) with questions composed by himself, but not resorting to the constructs of existing L2 motivational theories. The learners were found to be motivated by CMC as used in their classrooms (Warschauer, 1996). Using a questionnaire

compiled from Foreign Language Classroom Anxiety Scale (FLCAS) (Horwitz, Horwitz, & Cope, 1986), Arnold (2007) investigated whether face-to-face, SCMC (chat), and ACMC (forum) environments have a long-term effect on communication apprehension and also whether different CMC environments have different effects on communication apprehension of the participants ($n = 56$), whose anxiety level was moderate or low. A time effect was found across all the three environments but no significant difference in effect was seen among the three (Arnold, 2007). On the other hand, Poza (2011) found a positive time effect of an ACMC tool (a voice board system called 'Wimba') on the reduction of anxiety of L2 learners ($n = 46$) using a questionnaire compiled from several batteries of questions including FLCAS. She attributed the reduced anxiety of the learners to "the elimination of the time pressure of the classroom and the opportunity to edit" their audio products, which she assumed was facilitated by the ACMC tool (Poza, 2011, p. 51).

Online Exchanges as Motivational Interventions

In contrast with the research on the effects of CMC in terms of its medium, fewer studies have been conducted on the effects of online exchanges between learners from different countries with different linguistic and/or cultural backgrounds on their motivation in terms of the psychological constructs upon which L2 motivational theory is based.

Jauregi, de Graff, van den Bergh, and Kriz (2012) examined learners' motivational changes through a bilingual-bicultural exchange which had an intercultural video-web communication (SCMC) project as one of its components conducted between 36 Czech foreign language learners of Dutch and 35 Dutch pre-service language teachers. They measured learners' motivational change using a weekly questionnaire during the 10-week project. The project also included three weekly native-speaker-non-native-speaker (NS-NNS) video-web communication sessions, each of which lasted 30 minutes. Although they reported that the project had a positive impact on the learners' motivation, their conclusion was based on the individual question items rather than on the comparison of subscale scores of motivational constructs proposed in L2 motivational research.

Freiermuth and Huang (2012) employed a qualitative approach to L2 motivation in an online lingua franca exchange. They measured the motivation of 20 Japanese students of English as a foreign language (EFL) who chatted electronically in English with 19 Taiwanese EFL students. A 60-minute NNS-NNS chat session (SCMC) between the two groups was held once. A qualitative analysis of the responses collected from the participants from both groups after the session revealed that Task Attractiveness, Task Innovativeness, and Willingness to Communicate were evident in their comments on the session.

These two studies have demonstrated positive motivational effects of online exchanges that utilized SCMC, which could constitute a very different ecology to that of ACMC (Arnold, 2007; Kern, 2014). These two studies did not use subscale scores of psychological constructs based on existing L2 motivational theories, either, leaving room for improvement in terms of

the quantitative measurements of those constructs.

Interventions Based on L2 Motivation Research

Since Crooks and Schmidt's (1991) proposal, which noted the need for L2 motivational studies that yield more classroom pedagogical implications than they used to, an increasing number of theoretical and empirical studies have examined situational aspects of learner motivation (Dörnyei & Ushioda, 2010). It was in this context that Dörnyei's L2 Motivational Self System was proposed as a framework that explains not only the trait-like motivational properties that Gardner's socio-educational model tried to capture (Gardner, 1985; Gardner & Lambert, 1972), but also more situational processes dependent on teaching and learning experiences in L2 classrooms (Dörnyei, 2005; 2009a).

Dörnyei's framework thus has led to research on motivating language learners (Dörnyei, 2009a, p. 32; Guilloteaux & Dörnyei, 2008; Sugita McEown & Takeuchi, 2014; Ueki & Takeuchi, 2012; Lamb, 2017). Ueki and Takeuchi (2012) conducted a survey study to validate Dörnyei's L2 Motivational Self System in the Japan's context with 151 Japanese first-year university students. They reported that they successfully validated the system and noted that "Japanese learners' L2 motivation is mainly mediated by their Ideal L2 selves," suggesting that a clearer image about their future selves is more likely to lead to their motivated learning behaviors in the Japanese context (Ueki & Takeuchi, 2012, p. 14). They also found that a "perceived amount of information" about their future selves served to enhance the ideal L2 self, in turn leading to motivated learning behaviors (p. 13).

Research Questions (RQs)

Given the paucity of motivational studies on online lingua franca exchanges, as well as research and educational imperatives to shed light on the dynamic process of motivational change, learner participation, and the online environment that surrounds the learner in such an exchange, the present study employed a long-term online lingua franca exchange among L2 learners of English from different parts of the world. The study focused primarily on Japanese participants, their participation, the environment in the online forums, and their motivational changes. Accordingly, the present study was guided by the following research questions:

RQ1. What kind of change in learner motivation can result from an online lingua franca exchange?

RQ2. Is there any relationship between learner participation, the online environment that surrounds the learner, and their motivation? If there is, how are they related?

Method

Online Exchange Project and Participants

A semi-experimental EFL online exchange with multi-national participants was conducted in the context of a regular English course for nursing students at a national university in Japan.[1] The aims of the course included (a) to increase one's English writing skills and literacy, (b) to obtain a deeper understanding of different cultures, and (c) to increase one's familiarity with English expressions related to nursing. In practice, there was a consensus among the teaching staff involved in this part of the English curriculum to focus on (a) and (b) in implementing this course at that time. Hence, online exchange was selected as the main activity of the course.

The participants of the online exchange were 159 undergraduate nursing students from four countries, with 39, 38, 23, and 59 participants from Taiwan, Spain, Turkey, and Japan, respectively. The participants joined an online exchange program from October 2016 until mid-January 2017. Only the Japanese students' data were collected and analyzed focusing on motivational change and the interrelation between the motivational change and learners' participation under the same classroom settings, as the classrooms in the other countries had different class interventions, which was fully respected for the sake of ecological validity in each context in this study.

The participants of this study were all first-year students at a Japanese national university who majored in nursing (55 females and 4 males). They took this required weekly English course, and most of the class period was spent for this online exchange. They were all L2 learners of English and did not take any English lessons outside the university. There were two teachers who taught this course, in which one of them (the author, male) mainly managed and taught the course while the other (female) assisted him in providing occasional individual tutoring, including technical support, to the participants. A 53-item mock proficiency test modeled on the TOEIC Bridge was conducted at the beginning of the semester to measure the base proficiency of the Japanese participants. Cronbach's alpha for the entire mock test was .79, indicating that the overall reliability thereof was acceptable (Larson-Hall, 2010). The participants' results showed that their average proficiency was equivalent to TOEIC Bridge 140, TOEIC 390, or lower CEFR A2.

A complete set of proficiency test scores and motivational measurement scores was obtained from 51 of the 59 Japanese participants (48 females and 3 males) whose data was used in the analysis.[2]

Medium for Exchange: Moodle Forums

Moodle forum, an ACMC tool, was employed as the medium throughout the exchange. The four-month period of the exchange was divided into six *stages*; a Moodle forum was assigned to each stage. Stages 1 to 6 were opened in a series at one- or two-week intervals according to the schedule (Figure 1). The participants were encouraged to send one initial

post and at least one reply during each stage (i.e., each forum). They were instructed to work on these stages consecutively, starting with *Self-introduction and Our Student Life* (Stage 1), moving on to *Our Towns and Cities* (Stage 2), *Culture* (Stage 4), *Health Care / Nursing* (Stage 5), and ending with *Students' Views and Discussion* (Stage 6). They were also allowed to use pictures as well as text in their posts.

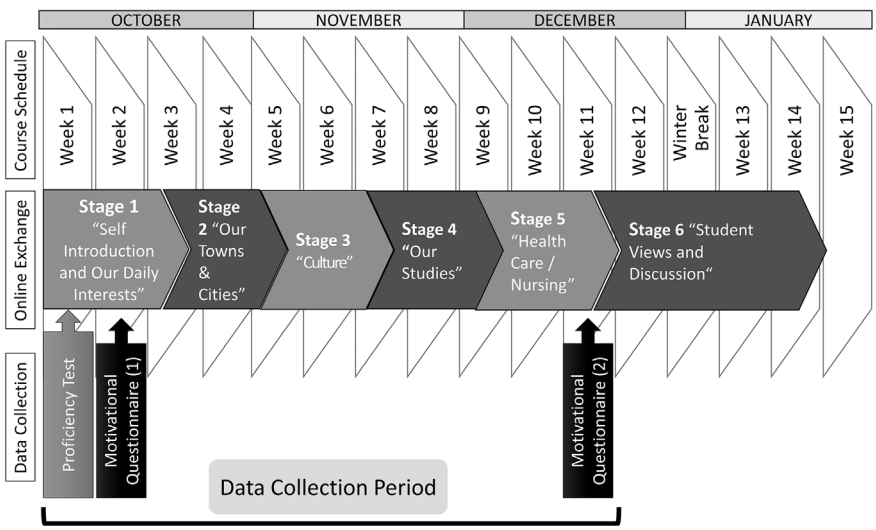

Figure 1. Schedule of the online exchange and the data collection period.

The data collection period was from Weeks 1 through 11, with the remaining several weeks cut from the entire duration of the exchange, because the participation of the Japanese students after this period varied greatly due to the two-week winter break that followed it.

Coursework and Evaluation

The Japanese participants attended the course's regular weekly meetings at a computer lab. At the beginning of every weekly meeting, a brief introduction of the latest stage (approx. 5 min), language advice for the stage (approx. 5 min), and additional instructions when necessary (approx. 5–15 min) were delivered before the students worked on the forum writing activity (approx. 70 min). During the writing activity, the teachers played a role of facilitator, keeping autonomy for the students, who can choose a specific topic of their own (a general theme such as "culture" was already given) and to whom they wrote. They could also talk to fellow students for exchanging ideas about their writing. Most of the time, however, the students were busy writing and researching on a topic with a desktop PC silently and in a concentrated manner. The students were also allowed to work on writing outside of class at the computer lab and some of them did so occasionally but the majority mainly worked on the exchange during the weekly class sessions.

The Japanese participants were evaluated primarily on the posts they produced in terms

of word count and quality. They were required to create an initial post and at least one reply to another participant's initial post, which was a basic minimal requirement that was shared by the classrooms in the other countries. In the classroom in Japan, a specific evaluation policy was presented that 55% of the final grade was based on the quantity and quality of their writing to encourage the students to demonstrate their writing skills and increase the occasions of learning through participation.[3]

Compilation and Administration of the Questionnaire

To determine the time effect of the students' participation on their motivation, a pre and post questionnaire was conducted. Based on the literature on the constructs of the ideal L2 self and anxiety (Dörnyei & Ushioda, 2010; Taguchi, Magid, & Papi, 2009), a 13-item questionnaire was compiled. Two constructs, ideal L2 self and anxiety, were hypothetically selected based on their relevance to the asynchronous online exchange, where learners are expected to use an L2 in an authentic environment arguably similar to the L2 use in their future but with less pressure in terms of time and face-to-face contacts (Kern, 2014; Poza, 2011; Ueki & Takeuchi, 2012). Some of the question items were modified slightly to reflect the participants' educational and classroom contexts (see Appendix for the items used). A six-point Likert scale was employed to assess the questions. The questionnaire was administered during the class meetings on Week 2 and Week 11 (Figure 1).

The participants gave consent to have their questionnaire responses used for the present study and all their forum messages throughout the exchange (i.e., Week 1 to 11) saved and used for research after anonymization. As stated below, the saved posts served as data for the quantitative analysis of the learners' participation in this study.

Operationalizing Learner Online Participation and Their Online Environments

Each participant's online participation in the exchange was operationalized in relation to two aspects of their writing: first, the number of replies sent by the participant, and second, the total word count of the posts sent by the participant throughout the data collection period. They are indexes of observable learner behaviors. Those behaviors could be motivated psychologically. Or more hypothetically, they could create opportunities for clarification of their own future L2 self image (Dörnyei, 2009a; Ueki & Takeuchi, 2012). Though these theoretical possibilities will not be proven in this study, the existence of such possibilities could be explored in the correlational analysis of this study.

In addition, the number of replies the participants received and the word count of those replies were tallied as a quantitative approximation of the learner's online environment. Again, they are indexes of observable behaviors that surrounds a learner, which are different from a learner's perception of them. However, the perception could be conditioned by them. The intensity of received replies indexed by number and length could enter into a causal relation with learner motivation if mediated by their perception of them. The possibility of

such a relation was explored from the correlational analyses on those indexes of received posts and motivation.

These quantifications were only conducted on their replies and not on their initial posts (Figure 2). As noted previously, the participants were encouraged to write and send no more than one initial post at each stage with 100–200 words depending on the stage, a minimum word count recommended by the instructor. Furthermore, they were encouraged to write at least one reply, but were recommended to write more if they wanted to. There was no minimum word count set for replies. Because of this relative flexibility in replies accorded to the participants, I focused on the replies in analysis based on the assumption that the number and length of replies would reflect the amount and intensity of their writing behaviors, which in turn could be related to motivation.

It is also noteworthy that a reply was addressed to a particular post of a particular participant, while an initial post was addressed to everyone in the exchange and not to a particular participant (Figure 2).

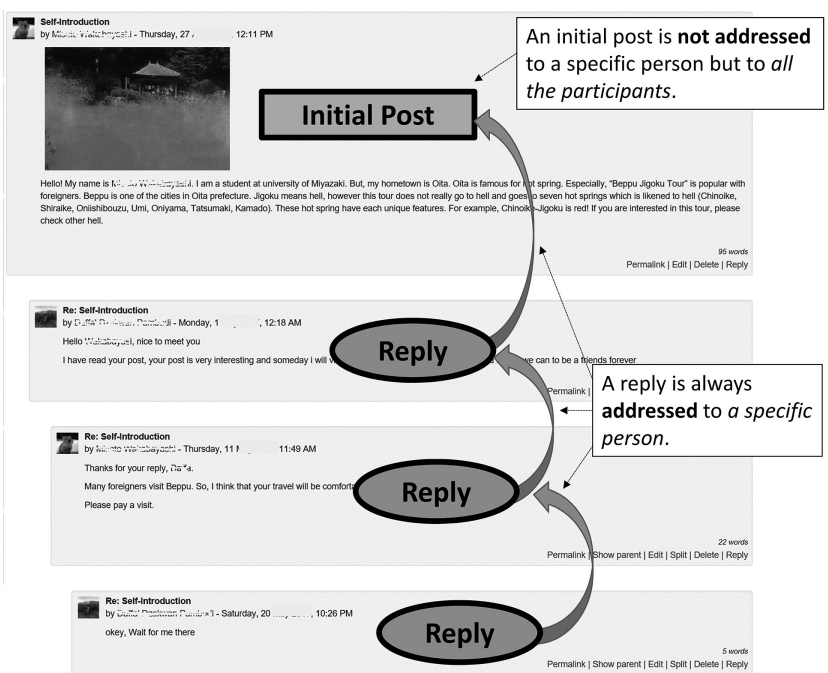

Figure 2. An initial post and replies in the exchange (Moodle forum).

In several exchanges previously held with different groups of students, and in this exchange as well, the participants were often observed to feel excited when they received a reply from another participant from another country and feel anxious about replies when they did not receive any after they posted their own initial writings. Consequently, I regarded the replies received as constituting the environment of each participant in a significant way in this study.

Results

Overall Participation and Interaction in the Online Exchange

The 159 participants from the four countries sent a total of 2,741 posts in the exchanges during the data collection period—an average of 17.2 posts (*SD* = 8.76) or 1,332 words (*SD* = 703) per participant.

The targeted group of Japanese participants (*n* = 51) sent an average number of 15.6 posts (*SD* = 7.41) or 1,055 words (*SD* = 372.8) per participant.

Online Participation and Environments of the Japanese Participants

The Japanese participants (*n* = 51) sent an average of 10.7 replies (*SD* = 7.26) to the other participants; the minimum and maximum number of replies were 1 and 32, respectively. They received an average of 11.6 replies (*SD* = 5.96) from the other participants; the minimum and maximum were 3 and 32, respectively. They wrote an average of 370.5 words (*SD* = 280.08) in their replies; the minimum was 22 and the maximum was 1,471. The average total word count of all the replies that Japanese participants received was 475.3 words (*SD* = 240.04).

Motivation and Motivational Change of the Participants

Cronbach's alpha was computed for each of the two latent variables in the questionnaire; the results revealed that the reliability of both the pre-data (ideal L2 self α = .90; anxiety α = .91) and post data (ideal L2self α = .90; anxiety α = .90) was good.

The subscale score for each latent variable, namely, ideal L2 self and anxiety was also calculated for the pre and the post data sets by averaging the scores of the items of each variable (eight and five items for ideal L2 self and anxiety, respectively). Subsequently, the subscale scores of all the individual participants (*n* = 51) were averaged to produce a mean subscale score of the Japanese group for each variable for the pre and post data sets.

A paired-samples *t*-test was conducted to compare the mean subscale scores of the pre and post datasets for each of the two variables by using Bonferroni adjusted alpha levels of .025 per test (.05/2). The results showed a significant increase and significant decrease of the mean subscale scores of ideal L2 self and anxiety, respectively (Table 1).

Table 1
Time Effects of Online Exchange on Learner Motivation (ideal L2 self and anxiety)

	n	Pre	Post	Diff.	*t*(50)	*p*	Cohen's *d*
		M (*SD*)	*M* (*SD*)				
Ideal L2 Self	51	2.41 (0.74)	2.64 (0.76)	0.23	−2.52	.015*	−.30
Anxiety	51	4.63 (1.20)	4.26 (1.11)	−0.37	2.74	.009*	.31

Note. * <.025 after Bonferroni adjustments.

Correlations Among Motivation, Participation, and the Environment

The interrelation of learner motivation/motivational change, their online participation, and online environment by writing was examined by conducting correlation analyses.[4]

Correlations among the motivational variables. Some moderate correlations between the two different variables, ideal L2 self and anxiety, were found in pre-post differences and the post phase. First, the pre-post difference in ideal L2 self was negatively correlated with that in anxiety with a medium effect size ($r = -.40$, $p = .004$). Second, in the post phase, ideal L2 self on the one hand and anxiety ($r = -.38$, $p = .006$) and the pre-post difference in anxiety ($r = -.30$, $p = .034$) on the other hand were negatively correlated with a medium or small size-effect (Table 2).

Moderate or strong correlations were also found between the pre and the post phase of the same motivational variables, that is, between the pre and post of ideal L2 self ($r = .63$, $p < .001$) and between the pre and post of anxiety ($r = .65$, $p < .001$).

Table 2
Correlations between the Learner Motivational Variables

		Pre		Post		Pre-Post Difference	
		IL2S	Anx	IL2S	Anx	IL2S	Anx
Pre	IL2S	—	−.14	.63***	−.11	−.40**	.04
	Anx		—	−.11	.65***	.03	−.49***
Post	IL2S			—	−.38**	.46***	−.30*
	Anx				—	−.32*	.34*
Pre-Post Difference	IL2S					—	−.40**
	Anx						—

Note. IL2S = ideal L2 self; Anx = anxiety. * $p < .05$. ** $p < .01$. *** $p < .001$.

On the other hand, correlation was not found between the two different motivational variables at the pre-phase ($r = -.14$, $p = .334$), nor between the pre-phase on the one hand and the post phase (Pre IL2S − Post Anx: $r = -.11$, $p = .435$; Pre Anx − Post IL2S: $r = -.11$, $p = .437$) or the pre-post difference (Pre IL2S − Pre-Post Diff. Anx: $r = .04$, $p = .766$; Pre Anx − Pre-Post Diff. IL2S: $r = .03$, $p = .859$) on the other hand. This indicates that, as far as the ideal L2 self and anxiety are concerned, throughout the data collection period, the initial state of the participants' motivation did not directly influence the motivational changes or the end state of the participants' motivation across different motivational variables, but just within the same variable.

Correlations between motivation and learner participation/environment. There were weak correlations between the motivational variables, on the one hand, and the learners' online participation and their online environment, on the other. The anxiety scores at the post phase were negatively correlated with participation variables such as the number of sent replies ($r = -.33$, $p = .017$) and total word count of sent replies ($r = -.37$, $p = .007$), as well

as with environmental variables such as number of received replies ($r = -.35$, $p = .013$) and total word count of received replies ($r = -.35$, $p = .013$) (Table 3).

Table 3
Correlations between Learner Motivational Variables and the Variables Related to Learner Participation and Environment

		Sent replies		Received replies	
		Number of replies	Total word count	Number of replies	Total word count
Pre	IL2S	−.10	−.16	−.07	−.06
	Anx	−.24	−.30*	−.24	−.22
Post	IL2S	.07	.10	.13	.15
	Anx	−.33*	−.37**	−.35*	−.35*
Pre-Post Difference	IL2S	.20	.30*	.23	.25
	Anx	−.09	−.05	−.10	−.12

Note. IL2S = ideal L2 self; Anx = anxiety. * $p < .05$. ** $p < .01$.

There was also a weak negative correlation between the anxiety score at the pre-phase and the total word count of sent replies ($r = -.30$, $p = .031$). In addition, weak negative correlations were also found between the post-anxiety score and the other participation/environmental variables (Post Anx − Sent Replies Num.: $r = -.33$, $p = .017$; Post Anx − Sent Replies TWC: $r = -37$, $p = .007$; Post Anx − Rcvd. Replies Num.: $r = -.35$, $p = .013$; Post Anx − Rcvd. Replies TWC: $r = -.35$, $p = .013$). However, correlation between the pre-post difference in the anxiety score and the participation/environmental variables was not detected (Table 3).

Regarding the correlation between ideal L2 self and learner participation/environment, there was one weak positive correlation between the pre-post difference in ideal L2 self and the total word count of sent replies ($r = .30$, $p = .033$) (Table 3).

Correlations between learner participation and environment. Strong positive correlations were found among the participation and environmental variables; these included those between the number of sent replies and the number of received replies ($r = .78$, $p < .001$), and between the total word count of sent replies and the total word count of received replies ($r = .64$, $p < .001$).

Discussion

The findings of this study suggest that the online lingua franca exchange resulted in changes in learner motivation, particularly anxiety. They also suggested that the magnitude of learners' online participation and that of received replies contributed to the process of their motivational change. These findings are discussed in relation to the two research questions of the study.

Research Question 1

In relation to the first research question, which questioned whether changes in learner motivation can be produced in an online lingua franca exchange, the ideal L2 self increased and anxiety decreased significantly, though each of these two trends may have emerged rather independently from each other (Dewaele & MacIntyre, 2014), as a result of learner participation and the interaction between the learner and the environment. Although the degree of change was modest for both variables, that of anxiety was slightly larger than that of ideal L2 self (Table 1). Thus, the online lingua franca exchange could lead to a reduction in learners' anxiety to express themselves, although not necessarily uniformly. These exchanges could also be instrumental in ensuring that learners have a clearer self-image of using English, possibly due to the authentic environment of exchanges where learners actually interact with other participants from other countries online (Dörnyei, 2009a).

Research Question 2

In relation to the second research question, which examined the relationship between learner motivation, participation and the online environment, the results revealed that it was possible that learners' participation and their online environment in this online exchange affected their motivation and lessened their anxiety, and also that those motivational changes may have affected their further participation in turn (de Bot & Larsen-Freeman, 2011).

Participation, environment, and anxiety level. The correlations between the anxiety score at the post phase, on the one hand, and the number/length of replies sent by learners and received from other learners, on the other, during the exchange suggested that the more learners participated and the more and longer replies they received, the less anxious and nervous they tended to be in the post phase of the exchange (Table 3). The frequency and length of the replies the participants received could be an index of a welcoming and inclusive environment, in which, characteristically, more words are exchanged than otherwise; this environment may have contributed to the reduction in their anxiety.

However, it was also found that the degree of anxiety reduction was not directly proportional to the intensity and density of participation/environment. As shown in Table 3, the number of sent and received replies did not correlate with the pre-post difference of anxiety. Lack of covariation in them could be attributed to large SDs of pre and post mean anxiety scores in comparison with relatively small SDs of ideal L2 self mean scores (Table 1). This might suggest that there was a variety of motivational states regarding anxiety in the cohort of this study and that their change process might have followed different paths.

It is also noteworthy that there was a weak negative correlation between anxiety at the pre-phase and the total word count of sent replies (Table 3). This indicates that learners with high anxiety levels at the outset tended to write less, whereas those with low anxiety levels tended to write more. This phenomenon could be related to avoidance behaviors that L2 learners with high anxiety levels typically exhibit (Horwitz et al., 1986). However, the overall

reduction of anxiety during the exchange suggests that learners' actual participation and environment contributed to their reduced anxiety, which, in turn, may have increased their participation resulting in further reduction of anxiety levels. From the viewpoint of CDST, an adaptive process might have been going on across different systems (anxiety, one's writing behavior, and maybe even another participant's replying to the former), each of which is adapting relative to each other (de Bot & Larsen-Freeman, 2011, p. 11).

Participation, environment, and the ideal L2 self. Learner participation (total word count of sent replies) correlated with the pre-post difference in ideal L2 self with a small effect size (Table 3). This indicates a tendency that the more the participants wrote in their replies, the greater their gains were in ideal L2 self after their participation. It is difficult to assume that a high level of ideal L2 self facilitated the learners' participation, because neither pre nor post scores of ideal L2 self correlated with the participation/environment variables (Table 3). Thus, it is more reasonable to assume that there is a weak but causal relationship from learner participation to an end-point clearer image of their possible selves. It is possible to assume that the learners' actual engagement in their online participation gave them a hands-on experience of using their L2, which may have resulted in their clearer self-concepts (Dörnyei, 2009a). CDST again does not exclude this possibility of "motivated" behaviors affecting motivation (de Bot & Larsen-Freeman, 2011, p. 11).

Interconnectedness of motivation, participation, and the environment. There is thus an interconnectedness of learner motivation, learner participation, and environment, where motivation is not only the starting point of one's behavior but can be changed due to the learner's participation or their interaction with the environment, which can in turn affect the multitude of their participation. It indicates that these phenomena constitute a complex system, whose components are all connected and adapting to each other in a complex way (Larsen-Freeman & Cameron, 2008, p. 38). A qualitative approach is likely to shed more light on the process, which should be addressed in another study due to spatial reasons.

Pedagogical Implications

The suggested connection between learners' motivation and their participation in online exchanges would provide encouragement to teachers who try to increase the learner participation by some strategies such as devising a scaffolding activity to support learner participation. Increased participation could provide learners with more opportunities for clarification and elaboration of the image of their using L2 (Dörnyei, 2009a). Together with the effect of anxiety reduction, the exchange's utility in forming one's ideal L2 self would have an important implication for Japan's EFL context, where learners' motivation is reportedly mediated by ideal L2 self to a large extent and high levels of anxiety affect learner motivation negatively (Ueki & Takeuchi, 2012, p. 10). Given a tendency of learners with low proficiency to have a high level of anxiety, the result of this study also indicates that online lingua franca exchanges could also be an educational option for elementary or lower

intermediate learners of English.

Evidence from online lingua franca exchanges such as this study could be informative when the incorporation of an online exchange into an existing curriculum is considered (O'Dowd, 2011). In countries like Japan, many EFL courses are compulsory subjects. The ACMC activities of the kind employed in this study are relatively easy to set up in comparison to SCMC, whose often complicated preparation process makes its implementation challenging (O'Dowd, 2016). Furthermore, the ACMC option is not disadvantaged by time differences across the world, which also often limits the SCMC option.

Limitations

When interpreting the findings of this study, it is imperative to consider its limitations. First, a control group was not employed in the study's design. Therefore, readers are advised not to interpret the findings as proof of the supremacy of an online lingua franca exchange over other educational approaches that guide learners' motivational development. Second, because a quantitative methodology was employed, only a limited set of variables was isolated and examined. In order to realize a comprehensive picture of learners' psychological and developmental processes, it is necessary to utilize a qualitative methodology. Third, it is recommended that more motivational constructs be examined in a future study so as to achieve a comprehensive understanding of learners' psychological processes. Finally, the correlation analyses conducted on the interrelationship between learners' participation, their environment, and their motivation were exploratory, necessitating another study to test those relations to prove the results of this study.

Conclusion

In this study, learner motivation and motivational change in an online lingua franca exchange based on two motivational constructs, namely ideal L2 self and anxiety, which emanate from the literature on L2 motivation research, were examined. Furthermore, correlations between these motivational variables, learners' participation, and their online environment in the online exchange were explored. The scores of the two motivational constructs changed: the ideal L2 self increased and anxiety was reduced, both significantly, with a small effect size. The correlational analyses between these motivational variables and the learner participation/environmental indexes indicated that the amount of learner participation and interaction with other participants correlated with a reduction in their anxiety levels and that the reduced anxiety might have facilitated their participation in turn. Furthermore, there was a weak correlation between the amount of participation and a heightened clarity of self-image as an L2 user; the former could partially but causally be responsible for the latter.

These findings also suggest that the framework of CDST provides some insight that can be used when setting up and developing online lingua franca exchanges for L2 learners of

English. In online lingua franca exchanges, there is often no special group of participants who are the native speakers of the target language. Multiple interconnectedness among the participants from various backgrounds could be a rich source for learning, a possibility that was indicated by this study.

Although this study focused on motivation and its interrelation with learners' participation in an online exchange, linguistic development in these types of activities need to be investigated in a future study to obtain more implications on the outcomes of online lingua franca exchange.

Notes

1. This exchange started two years before the 2016–17 exchange (the one featured in this study) as one of the main contents of the course. No more exchange of this exact type was held after this 2016–17 exchange due to a change in teacher assignment and curriculum but an exchange of a different type has been continuing as a part of another course of the university. This study, however, specifically focuses on the 2016–17 exchange which was conducted in a semi-experimental way to gain implications generalizable to not only the exchange currently going on at the same university but also other projects of any related type.
2. The data of eight Japanese participants were omitted because they missed some of the class meetings when the data collection was conducted, thereby resulting in incomplete data sets for those participants. I have assumed that these omissions did not cause a bias in the sampling of this study.
3. The other components of final grade were (a) the initial posts and the first replies at each stage (whether meeting the quantity requirements) (5%), (b) attendance (15%), (c) final report (10%), and (d) engagement in the classroom activities (15%).
4. Even though the learners' initial proficiency score was not included in the correlations reported here, in fact, no correlation was found between the learners' initial proficiency score, on the one hand, and any index of participation (number of sent replies: $r = -.04$, total word count: $r = -.09$) or of motivation (Pre IL2S: $r = -.06$, Pre Anx: $r = .00$; Post IL2S: $r = .12$, Post Anx: $r = -.07$; Pre-Post Diff. IL2S: $r = .07$, Pre-Post Diff. Anx $r = -.07$), on the other (p value was$< .05$ for all). Although it runs counter to our intuition that one's proficiency does not affect one's writing, I would leave it for further research here just pointing out two possibilities. First, the proficiency test used in this study might not have been a valid measure for the participants' writing ability, as the test only contained items about listening and reading. Second, the internal quality of learner written language (accuracy, complexity, etc.) might correlate more highly with one's proficiency than the amount of learner production.

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Appendix

The items used for the motivational questionnaire for the study and their English translation are provided in the below. The questionnaire items written in Japanese were used for the survey. Six-point Likert scales were used for their response.

Ideal L2 Self

1. 私は、将来外国の友達や同僚と英語で話す自分の姿を想像できる。
   I can imagine myself speaking English with international friends or colleagues.
2. 私は、自分が外国人と英語で話している状況を想像できる。
   I can imagine a situation where I am speaking English with foreigners.
3. 私は、英語を話せる自分を想像できる。
   I can imagine myself as someone who is able to speak English.
4. 私は、将来自分が海外で生活し、地元の人たちと英語を使って効果的にコミュニケーションをする姿を想像できる。
   I can imagine myself living abroad and using English effectively for communicating with the locals.
5. 私は、将来自分が海外で生活し、英語でディスカッションをする自分の姿を想像できる。
   I can imagine myself living abroad and having a discussion in English.
6. 私は、自分がEメールをスラスラと英語で書いている自分の姿を想像できる。
   I can imagine myself writing English e-mails fluently.
7. 私は自分が全ての授業を英語で受けるような大学や大学院で学ぶ自分の姿を想像できる。
   I can imagine myself studying in a university where all my courses are taught in English.
8. 私が将来したい事柄には、英語を使うことが必要である。
   The things I want to do in the future require me to use English.

Anxiety

1. 私は一般的に海外の人たちに英語でメッセージを書いて送る際に、不安を覚える。
   I generally feel anxious when I write and send a message to people in other countries.
2. 私はOCEPの海外の参加者に英語でメッセージを書いて送る際、不安を覚える。
   I feel anxious when I write and send a message to a participant from another country in OCEP.
3. 私は海外の人たちに何か質問されたとき、不安を覚える。
   I feel nervous if someone asks me something in English.
4. 私は海外の人たちと会う時、不安を覚える。
   I feel nervous when I meet people from other countries.
5. 私は英語でものを書くとき、おかしなことを書いていないかと不安を覚える。
   I feel anxious wondering if I am writing something strange when I write in English.