

# Mind and material: The interplay between computer-related and second language factors in online communication dialogues

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*With a growing demand for learning English and a trend of utilizing computers in education, methods that can achieve the effectiveness of computer-mediated communication (CMC) to support language learning in higher education have been examined. However, second language factors manipulate both the process and production of CMC and, therefore, attention is required when discussing factors influencing CMC in a second language setting. This paper discusses text-based CMC in an English-as-a-foreign-language (EFL) context and examines correlations between items included in CMC measures via a second language. Results show that CMC measures and second language proficiency are statistically correlated at a significant level. Some key points raised here are (1) a computer user's second language writing proficiency influences the computer communicative skills that he or she applies to the online dialogues; (2) a computer user's second language proficiency is related to his or her self-perception of the achievement on online dialogues; and (3) an EFL computer user's motivation for CMC is connected to his or her second language writing ability.*

**Keywords:** Computer-mediated Communication; Second Language Learning; EFL; CMC Motivation; CMC Skills; CMC Competence

## Introduction

Integrating computer technologies into language learning is considered to reflect the changing educational landscape because it not only meets the needs of the rapidly developing world, but also satisfies the preferences of young learners who are used to **159**

a technology-mediated lifestyle (Hockly, 2013; Garrett, 2009; Levy, 2009). In the Computer-assisted Language Learning (CALL) field, computer-mediated communication (CMC) has been greatly practiced in cross-cultural collaborative learning projects (Kozma, 2003; Kreijns, Kirschner, Jochems, & Buuren, 2007; Kawamura, Wu, & Jung, 2010) for its convenience to communicate across time zones and space. There is an increasing rate of incorporating CMC in cross-cultural projects in higher education settings (Merryfield, 2003; Tolmie & Boyle, 2000; Zeiss & Isabelli-García, 2005) due to the expanding concept of globalization and the gradual formation of multi-regional enterprises (Fitzpatrick & O'Dowd, 2012). Making use of CMC can greatly increase the chances for language learners to communicate cross-culturally and, thus, cultivate intercultural competence (Lee, 2006) interculturality (Jon 2009), and multicultural sensitivity (Oudenhoven & Zee, 2002), which are generally believed to be necessary for coping successfully with cross-cultural issues in the globalized environment (Chen, 2013; Whisted & Wright, 2013). In addition, the advancement of technologies has always helped expand learning pathways, provided communication channels, and created more conversation in visual and actual situations and, therefore, is generally appreciated by scholars (Wu & Marek, 2013). The incorporation of asynchronous and synchronous CMCs has been examined to achieve a deeper understanding in terms of its function in the language learning process (Lapadat, 2002; Zeiss & Isabelli-García, 2005; Wu & Chuang, 2013).

CMC is human communication via computers, which involves people who are situated in particular contexts shaped by media for a variety of purposes. Online interactions usually encompass complicated factors, such as the media that it utilizes, skills, personal traits, and social aspects, e.g., group and cultural issues (Spitzberg, 2006; Tolmie & Boyle, 2000). In a CMC-based language learning activity, language is the learning goal, and language learning is the most important factor in its attainment. This demands particularly close attention when the language of discourse alters (Howard, 2012; Lapadat, 2002; Murphy & Collins, 1997) from the first (L1) to the second language (L2). There is a significant difference between the use of L1 and L2 for discourse, identified by MacIntyre and his colleagues (MacIntyre & Baker, 2001; MacIntyre, Baker, Richard, & Donovan, 2003) because the use of L2 usually introduces complicated factors influencing the conversational setting (MacIntyre & Baker, 2001). Nevertheless, language achievement has to be presented via computer media in CMC-based activities, and an interwoven combination of L2 and computer factors influencing the online communication environment can help obtain a fuller picture of L2 online learning achievement (Chapelle, 2009; Wu & Chuang, 2013; Wu, 2014).

This study examines how computer-mediated communication factors are being manipulated in an online setting when the language of discourse is L2. The experience with CMC is limited to the use of text-based online communication in this study since text-based CMC serves as a major method for communication in many studies that support language and cross-cultural learning activities (Kawamura, Wu & Jung, 2010; Kim, 2000; Tolmie & Boyle, 2000; O'Dowd, 2003; Merryfield, 2003; Zeiss & Isabelli-García, 2005). The focus of the paper is on the skills and achievement applied to / presented via online communication using L2. Therefore, other factors, such as group issues, tasks, contexts and the media, will not be included in this study. One hundred eighty-six Asian EFL learners participated in this study and offered their views on using L2 for computer communication. The significance of this study lies in its expansion of current theoretical text-based CMC discussions in the L2 dimension and offers insights into the relationship between EFL learners' performance

1. What is the language nature of L2-oriented computer dialogue? In which ways will an EFL learner's L2 proficiency influence his or her computer-mediated communication performance?
2. How do EFL learners evaluate their CMC skills? How do EFL learners perceive their CMC competence via L2 efficiency?
3. How do EFL learners relate their CMC motivation to L2 setting ability? How does EFL learners' writing efficiency influence their motivation in online dialogues?

## Literature review

### *The language nature of computer-mediated communication*

Computer-mediated communication of different forms facilitates and supports L2 learning (González-Lloret, 2011) and is becoming increasingly prevalent. CMC for pedagogical use demands attention, but teachers must ensure its successful implementation as a teaching tool (Tolmie & Boyle, 2000). It is clear that CMC users can be very engaged and even immersed in their online discussions; however, it is highly possible that motivation on CMC, being influenced by the users' language proficiency, manipulates the ongoing process of a successful CMC project that supports language learning (Wu, 2014).

Even though the main function of computer interaction has been widely recognized for its efficiency for interpersonal communication, the language of CMC is in an informal written form (Howard, 2012) in its special communication practice aiming for interactive and reciprocal word exchange (Spitzberg, 2006). Even though research on the language of CMC has been examined according to its features, functions, contexts, processes, speed, etc., the "writing" process has been considered especially important in CMC (Lapadat, 2002). Whether synchronous or asynchronous, computer-mediated communications are presented in words. This means that the computer users have to make a meaningful exchange from the written texts in order to create interactions (Levy, 2009). The writing itself contains social meanings in the meaning-making process, but may also involve more complicated influences when the language of discourse changes from L1 to L2. This is considered to be a major transition (MacIntyre & Clément, Dörnyei, & Noels, 1998) because language proficiency introduces issues that do not exist in the L1 setting. Language proficiency will influence the motivation to speak, and will affect both expression quality and meaning-making. Intergroup issues that contain cultural or political elements may also occur (MacIntyre, Clément, Dörnyei, & Noels, 1998). The writing task in CMC is more important when L2 is used as the language of online discourse (Murphy & Collins, 1997; Wu & Chuang, 2013). Language proficiency is revealed through written text charged with different functions in synchronous and asynchronous CMC. For synchronous CMC, more concise and speedy language forms the basis of the conversation. For asynchronous CMC, more detailed and expressive writing pieces are likely to be produced (Lapadat, 2002).

When the language of discourse is L2 rather than L1, both CMC and a person's willingness to communicate are contributing to a much more complex situation because of the involvement of language factors. Language proficiency functions differently in the use of L1 and L2, and influences motivation to converse and even generate intergroup issues in social or political contexts (MacIntyre, Clément, Dörnyei, & Noels, 1998).

## *Factors manipulating computer-mediated communication*

Computer-mediated communications contain various dimensions, such as: 1) personal traits, that are decisive for the act of communicating experience and knowledge of how to communicate; 2) skills that can increase success or the sense of achievement in communication; and 3) media available from which to choose, context, and communicative-related factors (Spitzberg, 2006; Wrench & Punyanunt-Carter, 2007; Tolmie & Boyle, 2000; Kim, 2000). There are multiple factors influencing CMC. For example, Tolmie and Boyle (2000) proposed that the size of the group, knowledge of other participants, prior experience, understanding of the task, and ownership of the task will determine the success of a successful CMC-based project. On the other hand, Wrench and Punyanunt-Carter (2007) stressed the importance of CMC presence, communication apprehension, and media factors. Howard (2012) asserted that the success of CMC depends upon skills and communicative competence.

Some research focuses on building up CMC skills for good communication outcomes (Spitzberg, 2006; Savenye & Robinson, 2001), and the importance of sociability in CMC environments (Kreijns, Kirschner, Jochems, & Buuren, 2007; Castellá, Abad, Alonso, & Silla, 2000). Some research proposes different perspectives, for instance: Howard (2012) contended that computer media is mostly functional, and is only a medium that presents texts; Balance (2012) and Hockly (2013) stated that technological revolutions present a challenge to the media factor; whereas, Spitzberg (2006) asserted that media is an influencing factor regarding CMC's interactivity, adaptability, public-private dimensions, and efficiency. However, optimal use of the medium itself does not guarantee the achievement of meaningful social interactions if the communicators do not understand the socio-cultural meanings embedded in those exchanged texts (Chapelle, 2009). In other words, making meanings in CMC usually depends upon a combination of computer media and situational environments; thus, discussions of CMC skills cannot be based purely on the skill itself, but must be examined in light of their contextual settings (Howard, 2012).

Howard's (2012) contention that CMC users should be divided into native English speakers and non-native English speakers indicates the importance of language ability when using CMC. With different levels of language ability, the production process and achievement of online communication language will be different.

Wu and Chuang (2013) conducted a study in which college EFL students in Taiwan and Japan participated in an asynchronous CMC-based learning project. The researchers argued that CMC motivation is related to L2 efficiency, and argued the construct of "expressiveness" as being one element of CMC skill that is proven to be statistically significant for EFL users' CMC motivation. This result shows that L2 competence is influential on online expression. In another study, willingness to communicate in L2 written language and the desire to learn English have both been found to be statistically significant for the motivation of using CMC in an EFL context (Wu, 2014).

Among the factors influencing communication over computers, CMC skills and CMC competence, the final performance on CMC is thought to be closely related to EFL users' language proficiency (Howard, 2012; Wu & Chuang, 2013; Wu, 2014). This research adopts a portion of Spitzberg's theoretical framework of the Computer-Mediated Communication Competence (CMCC) model (2006). Spitzberg proposed that a computer user's CMC skills displays his or her computer proficiency, ability to use the computer media, and other skills related to communication management that can predict the outcome of a CMC activity.

Spitzberg further asserted that CMC skills are manifested in the areas of attentiveness, composure, coordination, and expressiveness.

The final achievement of CMC is termed “CMC competence” by Spitzberg (2006). Factors displaying competence via computers can be used as standards for evaluations of items for self-efficacy. Spitzberg stated that a user’s CMC competence manifests itself in the following areas: appropriateness, clarity, productivity, satisfaction, attractiveness, and efficiency.

## Methodology

### *Measures*

This study suggests that a combination of L2 factors in computer-mediated communication measurement and a focus on L2 writing proficiency offer increased relevance, particularly in the evaluation of EFL learners’ CMC achievement. Moreover, in an L2 communication context, L2 motivation, other than CMC motivation, is believed to manipulate online performance.

The purpose of the survey is to understand if and how EFL learners’ L2 writing proficiency affects their perception of CMC performance. The survey includes three parts that each examine a single dimension. A questionnaire selected from Spitzberg’s survey on the CMCC Model (2006) and MacIntyre and Baker’s (2001) survey on L2 WTC (MacIntyre, Baker, Clément, & Donovan, 2003) were combined and revised to suit the purpose of the survey of the study.

Part A examines four factors (attentiveness, composure, coordination, and expressiveness) that reveal CMC skill. This measure is called “CMC skills” and includes 13 items. The four factors and meanings covered are as follows:

**Attentiveness** can be displayed in a variety of ways: the main content of a message, appropriateness of questions, interpersonal support, and thoughtfulness of the message.

**Composure** can be demonstrated by avoiding cues of uncertainty, such as so-called “filler” words, and the proportion of subjective content in the message.

**Coordination** is displayed by time management, question management, and remaining on task.

**Expressiveness** can be demonstrated using emoticons, emotional variety of message content, the use of humor, and the level of personal openness.

Part B examines five factors: appropriateness, clarity, productivity, satisfaction, attractiveness, and efficiency that show CMC competence. This measure is called “CMC competence” and includes another 13 items. The six factors and meanings covered are as follows:

**Appropriateness** refers to what the computer user perceives as being appropriate for a message in the context of CMC.

**Clarity** means the degree to which both the sender and receiver can be mutually understood.

**Productivity** refers to the volume of useful correspondence.

**Satisfaction** means the positive emotion or experience associated with CMC.

**Attractiveness** refers to how appealing the message content is perceived to be by the receiver.

**Efficiency** means the degree of economy with which preferred outcomes are achieved.

Part C is borrowed from MacIntyre and Baker's (2001) study on willingness to communicate via L2 in order to examine participants' CMC motivation using L2. In order to understand motivation for online communication utilizing English, items included in Spitzberg's CMC motivation and MacIntyre and Baker's L2 WTC targeted for writing (2001) were combined and revised for the third part of the survey, entitled "L2 CMC motivation." There are 8 items in this category.

Items of all measures with meanings were explained to participants in their native language prior the survey. Data were analyzed using SPSS software to obtain correlations and mean scores.

### *Participants*

The study recruited 186 participants ( $n = 186$ ; 81 in the Taiwanese group and 105 in the Japanese group) for the survey investigating the attitudinal tendencies of Asian participants towards computer experience in L2 online interactions via writing in a discussion forum. Seventy-two Taiwanese university students, 9 Korean students studying in Taiwan, 98 Japanese college students, and 3 Chinese and 6 Korean students studying in Japan took part in the survey in spring 2013. Participants are in various majors in either their second or third years at a technical university in central Taiwan. The Japanese participants were freshmen and sophomores in various majors. The TOEIC scores of the Japanese participants ranged from 350 to 550. Taiwanese participants held language proficiency certificates ranging from A2 or B1 levels of local English proficiency tests and international language tests, with scores equal to TOEIC 350 to 550 and above.

### **Results and analysis**

The results and analysis of the study are examined from three aspects: (a) correlations among three measures; (b) mean scores of the three measures, and the highest and lowest ranked items; and (c) individual factors and their relationship to L2 CMC motivation.

#### *Correlations among the three variables*

The reliability coefficient of all measures is .88 (Cronbach's  $\alpha = .88$ ). The high reliability for the mixed items in the survey shows that L2 factors are closely related to CMC measures in an EFL context, and that it is appropriate to evaluate both CMC and language factors in a survey.

Other results show that correlations among CMC skill, CMC competence, and willingness to communication via English are significantly correlated.

CMC skill (A) measure is correlated to CMC competence (B) at a significant level ( $p = .000$ ), with a high-level correlation ( $r = .703$ ); CMC skill (A) measure is correlated to CMC motivation in written L2 (C) at a significant level ( $p = .000$ ), with a low-level correlation ( $r = .338$ ); and CMC competence measure (B) is correlated to CMC motivation in written L2 (C) at a significant level ( $p = .000$ ), with a low to intermediate level correlation ( $r = .415$ ). Correlations among the three factors utilized in the current survey reached a significant level. It is important to note that willingness to write in L2 has a lower correlation with both CMC skill and CMC competence in statistical analysis. The lower correlation between

Table 1: Correlations among three measures

		Part A	Part B	Part C
Part A (Skill)	Person correlation	1	.703**	.338**
	Sig. (2-tailed)		.000	.000
	N	186	186	186
Part B (Competence)	Person correlation	.703**	1	.415**
	Sig. (2-tailed)	.000		.000
	N	186	186	186
Part C (L2 Motivation)	Person correlation	.338**	.415**	1
	Sig. (2-tailed)	.000	.000	
	N	186	186	186

Note. Correlation is significant at the 0.01 level (2-tailed).

Table 2: Item and mean (SD) of individual factors in CMC skill measure

M	SD	Factor	Item
.32	0.93	Coordination	I know when and how to close down a topic of conversation in CMC dialogues.
			I am skilled at timing when I send my responses to people who talk to me online.
3.28	0.96	Attentiveness	I always propose questions to other people in my CMC
			I show concern for and interest in the person that I am conversing with in CMC.
3.36	1.09	Expressiveness	I can show compassion and empathy through the way that I write my CMC.
			I take time to make sure my response to others was sent to the particular receiver that I was sending it to.
3.08	0.98	Composure	I am very articulate and expressive in my CMC messages.
			I use a lot of the expressive symbols (e.g., J for "smile") in my CMC messages.
			I try to use a lot of humor when writing CMC messages.
			I have no trouble expressing my opinions forcefully on CMC.
			I make sure that my purposes are emphasized in my CMC messages. (composure)
			My CMC are written in a confident style. (composure)
			I am skillful at revealing composure in my CMC interactions. (composure)

CMC skill, CMC competence, and CMC motivation might be the result of the more flexible linguistic features and socially-oriented, conversational style in most CMC.

### Mean scores of three variables

The results of the mean scores provide necessary information for a more complete view of the analysis. The overall mean is 3.25 ( $M = 3.25, SD = 0.11$ ), which demonstrates that most participants have a favorable attitude toward online communication via English.

For individual measures, CMC skill is 3.24 ( $M = 3.24, SD = 0.99$ ); CMC competence is 3.36 ( $M = 3.36, SD = 0.96$ ); and L2 CMC motivation is 3.06 ( $M = 3.06; SD = 1.07$ ). Among the means of the three measures, L2 CMC motivation is clearly the lowest. This result shows the manipulation of L2 proficiency in a computer user’s motivation for online communication. A clearer picture describing the situation will be discussed along with mean scores of particular items. Table 2 presents mean scores and standard deviations (SD) of individual factors in CMC skill.

In Table 2, the factor “Expressiveness” has gained a higher mean score; whereas, “Composure,” the ability to express with certainty in the content, received a comparative lower mean score.

The highest and lowest items for mean scores for the different variables are shown in the following tables.

Table 3: Highest and lowest yield items for CMC skill in different learning groups

Cultural Group	Highest	Lowest	CMC skill
Japan	I am skilled at timing when I send responses to people who talk to me online. (m = 3.65)	My CMC is written in a confident style. (m = 3.02)	Highest – coordination Lowest – composure
Taiwan	I use a lot of emoticons in my CMC messages. (m = 3.68)	I have no trouble expressing my opinions in CMC. (Item had been reversed) (m = 2.81)	Highest – expressiveness Lowest – composure
Overall	I use a lot of emoticons in my CMC messages. (m = 3.63)	My CMC is written in a confident style. (m = 2.99)	Highest – expressiveness Lowest – composure

Japanese participants thought that they performed best in coordination regarding replying at the correct times. In fact, most of them exhibit a lack confidence in their writing ability, which is related to another CMC skill, i.e., composure. Taiwanese participants, on the other hand, believe that they are skillful in using emoticons to help express themselves. Like their Japanese counterparts, Taiwanese participants are uneasy about their ability to clearly express themselves in English. The highest yield mean score item is “I use a lot of emoticons in my CMC messages.” This item had an average score of 3.63. The lowest mean score in this category is “My CMC is written in a confident style” ( $m = 2.99$ ) followed by the second-lowest, “I am skillful at revealing composure in my CMC interaction” ( $m = 3.08$ ). The highest and the lowest scored items reveal the challenges that participants face when writing online utilizing L2. A lack of confidence or a fear of writing may very possibly result in using a large number of emoticons, since these can be employed to replace text in a message.



Emoticons are widely used in the Asian context to help compensate for incomplete meaning of one's CMC; whereas, a sense of incompleteness in CMC in an EFL context is related to one's language proficiency regarding linguistic expression, rather than simply as symbols used to enrich the communication context. This strategy can help to hide embarrassment related to the poor written-language skills of a user. From the results, we learned that many participants feel quite lost when texting messages in English. Fear of making mistakes and/or incompetence in written expression may cause uneasiness or anxiety, preventing the writer from exhibiting composure in CMC writing. This provides insight into the process in which writing tasks appear to be challenging to low- to intermediate-level EFL learners. Learners at this level or lower generally experience difficulties in the writing process.

Another item that received a lower mean score helps to explain the above situation. According to Spitzberg's (2006) definition, composure is displayed when a computer user writes with ease and confidence. In this EFL context, composure might be related to one's language proficiency and writing skill. Compared with native English speakers, language proficiency is more crucial for most EFL learners than one's writing skill because EFL learners frequently struggle to find appropriate words and correct sentences to express themselves before they are aware of employing any writing skill for their CMCs. In addition, some CMCs are aimed at social interactions and exchanges of information that may not require writing skills in a strict sense. Thus, composure as a CMC competence is more concerned with language proficiency than writing skills. In this study, the lower mean score of the item indicated those EFL participants' anxiety about engaging in CMC using L2. From an overall perspective of participants' perception of CMC skill, EFL learners were challenged by the CMC writing task and did not exhibit ease and confidence in the CMC-based task.

Table 4: Items and mean (SD) of factors in CMC competence

Mean	SD	Factor	Item
3.64	1.06	Appropriateness	In CMC, I pay as much attention to the way I say things as what I say. I am careful to make my comments and behaviors appropriate to the situation.
3.12	0.89	Efficiency	I generally get what I want out of CMC interactions. I am effective in my CMC conversations with others.
3.28	0.91	Clarity	I get my ideas across clearly in CMC conversations with others. My CMC comments are usually accurate and clear. I feel understood when I interact with others.
3.42	1.00	Satisfaction	I am generally satisfied with my communication encounters. I enjoy my interactions with others via CMC.
3.27	0.83	Attractiveness	If I talk to someone in CMC conversation, I can usually get them to like me.
3.32	0.96	Productivity	I have a sense of accomplishment on English learning using CMC. CMC technologies are very beneficial to the study of English.

Table 4 presents mean scores of individual factors being measured in CMC competence. "Appropriateness," which indicates what the computer user perceives as being appropriate 167

for a message in the context of CMC, received the highest mean; whereas, “Efficiency,” a factor measuring the degree of economy with which preferred outcomes are achieved, received a comparatively lower mean score. Table 5 presents individual items that received highest and lowest mean scores in the measure CMC competence.

Table 5: Highest and lowest yield items for CMC competence

Cultural Group	Highest	Lowest	CMC competence
Japan	I am careful to make my comments and behaviors appropriate to the situation. (m = 3.99)	I generally get what I want out of CMC interactions. (m = 3.10)	Highest – appropriateness Lowest – effectiveness
Taiwan	CMC technologies are very beneficial to the study of English. (m = 3.62)	I am effective in my CMC conversation with others. (m = 3.09)	Highest – productivity Lowest – effectiveness
Overall	I am careful to make my comments and behaviors appropriate to the situation. (m = 3.75)	I am effective in my CMC conversation with others. (m = 3.11)	Highest – appropriateness Lowest – effectiveness

Concerning perceived CMC competence, participants from these two learning groups displayed different viewpoints. For the Japanese learning group, the strongest competence that they see themselves as possessing is appropriateness, in which they try to make their CMC content appropriate and aligned with social norms. Taiwanese learners, on the other hand, perceive computer conversations from a language-learning perspective and agree that using CMC produces valuable benefits. Therefore, the strongest competence that they perceive is productivity. An interesting point is that participants from both learning groups see effectiveness as their weakest competence item. For overall evaluation, the highest mean score item is, “I am careful to make my comments and behaviors appropriate to the situation” (m = 3.75) followed by another item showing appropriateness as competence, “I am confident at the things that I want to say in my writing” (m = 3.72). The lowest mean scores occur for two items showing effectiveness, “I generally get what I want out of CMC interactions” (m = 3.12) and “I am effective in my CMC conversations with others” (m = .11). The items that yielded higher mean scores show that participants perceive high CMC competence on appropriateness; whereas, they were generally dissatisfied with their own effectiveness in CMC.

Table 6 presents mean scores of individual items being measured in L2 CMC motivation. As previously mentioned, items in this dimension received comparatively lower mean scores on average compared to those in CMC skill and CMC competence. Among the eight items, four received mean scores under 3, which indicates “Disagree” on the 5-point Likert Scale.

A closer look at the items helps to provide insight into EFL learners’ attitudes toward online communication utilizing written English. Those items involving the act of writing received lower mean scores, which indicates a strong connection between willingness to write in English and communicate online. On the other hand, those items asking about participants’ opinions toward the benefits of language learning via online communication

Table 6: Mean (SD) of items in L2 CMC motivation

Mean	SD	Item
2.87	1.15	I like to write in English using the online communicative way to do my homework.
2.81	1.07	I like to write down my viewpoints in English through online communication with others.
2.90	1.03	I like to share my viewpoints in English online.
3.43	0.99	Working with others via online communication is beneficial to my learning.
3.46	0.98	Working with others via online communication is interesting to me.
3.02	1.14	I am afraid that there will be mistakes in my online English writing.
2.58	1.17	I am willing to write English in online communication with other people.
3.42	1.06	Working with others via online communication helps me learn English.

received higher recognition. In other words, most participants believe that CMC using L2 is beneficial to their learning ( $m = 3.43$ ), and they admit that “working with others via online communication is interesting” ( $m = 3.46$ ). An overall view of the results indicates that even though collaborative CMC-based projects across countries are welcomed and generally meet with approval among EFL learners, willingness to use this form of communication might still be low because of the high level of language proficiency required in writing tasks. These conclusions echo results gathered from the first part of the survey regarding CMC skills, in which we discovered that despite the fact that CMC does not require a strict writing formula, CMC writing still presents certain kinds of challenges for EFL learners.

### *Individual factors and their correlation with L2 CMC motivation*

Results of correlations between individual factors involved in different variables to the main factor, L2 WTC, offer further insights into the analysis. The results are shown in Table 7.

Table 7: Correlations among all L2-related measures.

Measures		L2 CMC motivation
Attentiveness	Person correlation	.185(**)
Composure	Sig. (2-tailed)	.291(**)
Coordination		.333(**)
Expressiveness		.244(**)
Appropriateness	Person correlation	.246(**)
Clarity	Sig. (2-tailed)	.260(**)
Productivity		.427(**)
Satisfaction		.395(**)
Attractiveness		.262(**)
Effectiveness		.173(**)
Willingness to write via L2	Pearson correlation	1
	Sig. (2-tailed)	

Note. \*\* Correlation is significant at the 0.01 level (2-tailed). 169

Table 7 presents the results concerning how each individual computer-related factor is related to using L2 for computer communication. Among these measurement items are:

### *CMC skill*

Attentiveness is statistically significant to willingness to write in L2 ( $p = .012$ ), with a high level of correlation ( $r = .185$ ).

Composure is statistically significant to willingness to write in L2 ( $p = .000$ ), with a high to intermediate level of correlation ( $r = .291$ ).

Coordination is statistically significant to willingness to write in L2 ( $p = .000$ ), with an intermediate level of correlation ( $r = .333$ ).

Expressiveness is statistically significant to willingness to write in L2 ( $p = .001$ ), with a high level of correlation ( $r = .244$ ).

### *CMC competence*

Appropriateness is statistically significant to willingness to write in L2 ( $p = .001$ ), with a high level of correlation ( $r = .246$ ).

Effectiveness is statistically significant to willingness to write in L2 ( $p = .019$ ), with a high level of correlation ( $r = .173$ ).

Clarity is statistically significant to willingness to write in L2 ( $p = .000$ ), with a high level of correlation ( $r = .260$ ).

Satisfaction is statistically significant to willingness to write in L2 ( $p = .000$ ), with an intermediate level of correlation ( $r = .395$ ).

Attractiveness is statistically significant to willingness to write in L2 ( $p = .000$ ), with a high level of correlation ( $r = .262$ ).

Productivity is statistically significant to willingness to write in L2 ( $p = .000$ ), with an intermediate to low level of correlation ( $r = .427$ ).

All of the factors discussed in Spitzberg's CMCC model (2006) were found to be significantly related to the measure CMC motivation in written L2 and, again, provide evidence for the interwoven relationship between L2 factors and computer-related factors in a CMC-based project. This parallels the patterns for an EFL learner's motivation to communicate with others (MacIntyre, 2007; Yashima, 2002). A lower level of anxiety, based on better language proficiency, will result in a higher possibility of communication skills. This directs our attention to the fact that, in order to evaluate the success of a CMC-based project or to increase its potential for success, L2 factors must be included as influential elements.

## Discussion

The results of this study demonstrate that factors, such as expressiveness and composure displaying CMC skill, are particularly important in an EFL context in terms of all factors. This shows that L2 learners evaluate their CMC skill in terms of language proficiency revealed in writing ability. Expressiveness demands a solid command of language proficiency and writing skills so that the computer user can express him or herself proficiently with the use of proper vocabulary to convey accurate meanings. Composure has more to do with the sense of achievement related to a person's high language proficiency and good writing ability, which allows one to display confidence in writing. The results of our study show that an examination of CMC skill can reveal the influence of language factors and, therefore, can be included in the evaluation of CMC-based activity via L2.

These results, corresponding with results and analysis for skill and competence, indicate that language is a barrier and a key factor for online communication using English for EFL learners. When examining CMC factors, in most occasions importance is placed on anxiety about using computers, fear of communication or writing, and other related factors. In certain studies, fear of writing is unrelated to computer-mediated communication (Wrench & Punyanunt-Carter, 2007) because of the flexible format of CMC text. This is very likely because CMC does not require proficient writing; however, a lack of language proficiency prevents the user from expressing his or her viewpoints and, therefore, decreases motivation for using CMC. The results of this study indicate that low language proficiency contributes to a reduction in confidence and the quality of writing, and will decrease a person's willingness to communicate online.

Computer communication is not purely about texting, it also concerns how a user sees his or her performance online, and how he or she perceives his or her own language proficiency in terms of writing ability, communication ability, and overall English ability. Regardless of the level of actual achievement, the user's perception of his or her achievement is crucial. Feedback from others will also be influential in maintaining motivation in a CMC-based project. Therefore, to EFL learners, with all of the computer factors discussed that are related to English language proficiency, such as skill and competence, self-perception of one's own English ability is likely to influence both the process and the outcome of computer-mediated communication dialogue. However, perceptions about the relationship between language and certain CMC skills or competencies might differ from person to person. For example, if a computer user thinks that using many emoticons is sufficient for him or her to express him or herself accurately, he or she might not need to depend too much on English writing ability. This means that the overall satisfaction level toward one's CMC performance is not necessarily related to one's perception of one's own language ability.

The results of this study suggest including L2 measures to correct the previous neglect of the language role in some models when evaluating the implementation of CMC projects in higher educational settings. The results obtained from SPSS software revealed that items developed for motivation to write for communication worked well with other CMC factors. This indicates that language proficiency does matter in a CMC-based activity via L2 and, simultaneously, demonstrates the necessity of including L2 measurements for CMC-based language learning activities. Specific items for the measurement of language competence for writing and communication tendencies can be examined, particularly in their relationship to the utilization of CMC.

Generally, Asian EFL learners showed uneasiness toward using L2 for computer **171**

communication. This uneasiness was revealed in fear toward mistake-making, unwillingness to write or share viewpoints via computer, and anxiety. It is clear from this research that language proficiency matters a great deal in L2 learners' motivation for online communication.

## Conclusion and implications

The Internet and CMC are rapidly becoming vital methods of communication not only for cross-cultural collaboration, but also for enhancing English-language learning. With the growing demand for learning English in almost every part of the world and a rapid expansion of non-native English-speaking populations, the relationship between English learning and computer utilization will become both closer and stronger. However, elements other than technology and English proficiency influence cross-cultural communication. A more in-depth examination of the factors that will contribute to the success of web-based projects, therefore, demands the integration of factors in both areas.

## References

- Balance, O.J. (2012). Mobile language learning: More than just "The Platform". *Language Learning & Technology*, 16(3), 21–23.
- Castellá, V.O., Abad, A. M. Z., Alonso, F. P., Silla, J. M. P. (2000). The influence of familiarity among group members, group atmosphere and assertiveness on uninhibited behavior through three different communication media. *Computers in Human Behavior*, 16, 141–159.
- Chapelle C.A. (2009). The relationship between second language acquisition theory and computer-assisted language learning. *The Modern Language Journal*, 93(1), 741–753.
- Chen, C. M. (2013) The next wave of competition, international mobility and cross-cultural thinking. *English Career* 188 (14), 20–33.
- Garrett, N. (2009). Computer-assisted language learning trends and issues revisited: Integrating innovation. *The Modern Language Journal* 93(1), 719–739.
- González-Lloret, M. (2011) Conversation analysis of computer-mediated communication. *CALICO: The Computer Assisted Language Instruction Consortium*, 28(2), 308–325.
- Hockly, N. (2013). Mobile learning. *ELT Journal*, 67(1), 80–84.
- Howard, G. D. (2012). An instructional paradigm for the teaching of computer-mediated communication. *Instructional Science*, 40, 493–513.
- Jon, J-E. (2009). 'Interculturality' in higher education as student intercultural learning and development: A case study in South Korea. *Intercultural Education*, 20(5), 439–449.
- Kawamura, M., Wu, P.H., & Jung, J. (2010). Collaborative teaching methodology: Global approach to teaching English as a foreign language. Y.J. Chao & W.V. Wu (Eds.) *Pre-Conference Proceedings of Asian EFL Journal International Conference*, Taichung, Taiwan, April 23–25, 325–336.
- Kim, J-Y. (2000). Social interaction in computer-mediated communication. *American Society for Information Science*, 26(3), 15–17.
- Kozma, R. B. (2003). Technology and classroom practices: An international study. *Journal of Research on Technology in Education*, 36(1), 1–14. Retrieved from [http://robertkozma.com/images/kozma\\_jrte.pdf](http://robertkozma.com/images/kozma_jrte.pdf)

- Kreijns, K., Kirschner, P.A., Jochems, W., & Van Buuren, H. (2007). Measuring perceived sociability of computer-supported collaborative learning environments. *Computers & Education*, 49(2), 176–192.
- Lapadat, J. (2002). Written interaction: A key component in online learning. *Journal of Computer-Mediated Communication*, 7(4). Retrieved from <http://www.ascusc.org/jcmc/vol17/issue4/lapadat.html>.
- Lee, P.-W. (2006). Bridging cultures: Understanding the construction of relational identity in intercultural friendship. *Journal of Intercultural Communication Research*, 35(1), 3–22.
- Lee, E.-J. (2007). Deindividuation effects on group polarization in computer-mediated communication: The role of group identification, public-self-awareness, and perceived argument quality. *Journal of Communication*, 57, 385–403.
- Levy, M. (2009). Technologies in use for second language learning. *The Modern Language Journal*, 93(1), 769–782. doi: 0026-7902/09/769-782
- MacIntyre, P.D., Clément, R., Dörnyei, Z., & Noels, K.A. (1998). Conceptualizing willingness to communicate in a L2: A situational model of L2 confidence and affiliation. *The Modern Language Journal*, 82(iv), 545–562.
- MacIntyre, P.D., & Baker, S.C. (2001). Willingness to communicate, social support, and language-learning orientations of immersion students. *Studies in Second Language Acquisition*, 23, 369–388.
- MacIntyre, P.D., Baker, S.C., Richard C., & Donovan, L. (2003). Talking in order to learn: Willingness to communicate and intensive language programs. *The Canadian Modern Language Review*, 59(4), 589–607.
- MacIntyre, P.D. (2007). Willingness to communicate in the second language: Understanding the decision to speak as a volitional process. *The Modern Language Journal*, 92(iv), 564–576.
- Merryfield, M. (2003). Like a veil: Cross-cultural experiential learning online. *Contemporary Issues in Technology and Teacher Education*, 3(2), 143–171.
- Murphy, K.L., & Collins, M.P. (1997). Development of communication conventions in instructional electronic chats. *Journal of Distance Education*, XII (1/2), 177–200.
- O'Dowd, R. (2003). Understanding the “other side”: Intercultural learning in a Spanish-English e-mail exchange. *Language Learning & Technology*, 7(2), 118–144.
- Oudenhoven, J.P.V., & Zee, K.I.V. (2002). Predicting multicultural effectiveness of international students: The Multicultural Personality Questionnaire. *International Journal of Intercultural Relations*, 26, 679–694.
- Savenye, W.C., & Robinson, R.S. (2001). *The Handbook of Research for Educational Communications and Technology*. The Association for Educational Communications and Technology. Retrieved from <http://www.aect.org/edtech/ed1/40/index.html>
- Spitzberg, B. (2006). Toward a theory of computer-mediated communication competence. *Journal of Computer-mediated Communication*, 11(2), 629–666. Retrieved from <http://jcmc.indiana.edu/vol11/issue2/spitzberg.html>.
- Tolmie, A., & Boyle, J. (2000). Factors influencing the success of computer mediated communication (CMC) environments in university teaching: A review and case study. *Computers & Education*, 34, 119–140.
- Whisted, C., & Wright, P. (2013). English language learning in the Japanese higher education sector: Towards internationalization. *Intercultural Education* 24(3), 1–15.

- Wrench, J. S., & Punyanunt-Carter, N. M. (2007). The relationship between computer-mediated-communication competence, apprehension, self-efficacy, perceived confidence, and social presence. *Southern Communication Journal*, 72(4), 355-378.
- Wu, P. H., & Kawamura, M. (2012). A comparison of Japanese and Taiwanese students' attitudes toward cross-cultural English learning activities. A. M. Stoke (Ed.) *JALT Conference Proceedings - JALT2011*, Tokyo, Japan, November 21-23, 1-11. Retrieved from <http://JALT-publications.org/proceedings/articles/1705>
- Wu, P. H., & Marek, M. W. (2013). Helping second language literature learners overcome e-learning difficulties: LET-NET team teaching with online peer interaction. *Journal of Education and Learning*, 2(4), 87-101.
- Wu, P. H., & Chuang, W. T. (2013). L2 CMC motivation in task-based computer-mediated communications. *AsiaCALL Online Journal Special Issue*. Retrieved from <http://asiacall.info/acoj/asiacall2012proc>
- Wu, P. H. (2014). Potential second language factors in cross-cultural communication. *SPECTRUM: Studies in Language, Literature, Translation, and Interpretation*, 11, 39-56.
- Yashima, T. (2002). Willingness to communicate in a second language: The Japanese EFL context. *The Modern Language Journal*, 86(i), 54-66.
- Zeiss, E., & Isabelli-García, C. L. (2005). The role of asynchronous computer mediated communication on enhancing cultural awareness. *Computer Assisted Language Learning*, 18(3), 151-169.

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