

**EXPLORING THE ROLE OF SELF-EFFICACY
BELIEFS AND CMC IN DISCOURSE
CO-CONSTRUCTION: A LONGITUDINAL CASE
STUDY OF LEARNERS OF SPANISH AS A
SECOND LANGUAGE¹**

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Abstract

This longitudinal study investigated the relationship between self-efficacy beliefs (i.e. personal judgements of second language performance capabilities) and participation patterns in face-to-face interaction and synchronous text-based computer-mediated communication. Specifically, this study examined the discourse behaviour of two intermediate second language students of Spanish, a high and a low self-efficacy learner, and explores whether synchronous text-based computer-mediated communication (SCMC) can play a role in promoting social interaction and interactive participation. A mixed-mode research approach was selected to account for the complexity of the process under study. This involved documenting participation by the high and the low self-efficacy learners across the two modes of communication over a university academic year. The two case-study participants' chat-log and conversation transcripts were analysed by employing: a) quantitative measures of participation; namely words and turns produced; b) Dörnyei and Kormos' (1998) taxonomy of Communication Strategies, and c) Eggins and Slade's (2004) classification of Speech Functions. Quantitative results indicated that participation patterns were affected by Self-efficacy beliefs regardless of the mode of communication. However, fine-grained, qualitative analyses suggested that, over time, text-based chat indeed allowed discourse roles to become increasingly more symmetrical. Findings thus indicate that SCMC can play a positive role in promoting opportunities for equal interactional control and interactivity in discourse co-construction, particularly, for learners with lower self-efficacy beliefs.

Keywords: *Self-Efficacy beliefs, computer-mediated communication, second language learning.*

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Introduction

Research suggests that Computer-Mediated Communication (CMC) can encourage second language learners' participation in conversational exchanges, and that this can provide opportunities for the development of their communicative competence in the target language. A number of CMC studies report increased learner participation in text-based exchanges (e. g. Satar & Özdener, 2008). This is often evidenced by an increase in the quantity of language produced, for example through longer exchanges (Sequeira, 2009). Within CMC, synchronous text-based chat has been identified as being especially effective in providing opportunities for negotiation of meaning given that learners can pause and pay closer attention to linguistic form, or plan the content of their output (Collentine, 2009). This leads to increased opportunities for increased linguistic complexity in learners' output (Sauro, 2012), compared to face-to-face production. It has also been suggested that CMC creates opportunities for increased equal participation (e.g. Thomas, 2012). Research has reported that while face-to-face exchanges can become unbalanced, with proficient students dominating the floor or selecting the topics (Vetter & Chanier, 2006), in CMC, learners can take the floor more easily, and have a greater role in discourse management (Sauro, 2012).

Besides studies focusing on linguistic aspects of interaction, CMC research has explored how learners' goals and motivation affect the social roles they adopt, and how participants use online features to construct discourse as a joint activity (e.g. Peterson, 2012). Positive attitudes towards language learning have been reported as a result of learners' greater control over the interaction and reduced anxiety in CMC (Kissau McCullough & Pyke, 2010). Further, it has been reported that if CMC is used to facilitate meaningful exchanges that display collaboration and the sharing of opinions and ideas, motivation is further sustained (Wehner, Gump & Downey, 2011). For these reasons, scholarship suggest that SCMC provides an ideal context for social interaction, scaffolding and interactive participation, given its discursively-constructed environment (Yamada, 2009).

The term *interactive participation* within this study presupposes that learning is essentially a social phenomenon that is constructed through patterns of discourse behaviour. Research adopting a sociocognitive perspective has paid close attention to the relationship between the social context and the learner, and has investigated how social processes enhance learning (e.g. Gass & Mackey, 2006). A number of contextual, as well as individual learner variables, have been found to affect participation in L2 interaction in the language classroom (Dewaele & MacIntyre, 2014). Among these variables, self-efficacy beliefs, or "personal judgements of performance capabilities in a given domain of activities" (Schunk, 1985:208) have been described as having a powerful influence over the learning process and, ultimately, over achievement (Bandura, 1997; Breen, 2001). In SLA research, self-efficacy beliefs have been found to affect learners' willingness to engage in the learning process (Zheng, Young, Brewer & Wagner, 2009), the amount of language produced (Dörnyei & Kormos, 2000) and the use and choice of learning (Pajares & Schunck, 2001) and communication strategies (Wong, 2005).

Some empirical studies have shown that SCMC may provide greater opportunities for learners who have an actual or perceived low-level of proficiency to participate in interaction (e.g. Thomas, 2012). However, most studies have employed general measures of *self-confidence* (e.g. Wu & Marek, 2010), rather than robust domain-specific scales of self-efficacy (for further discussion on the measurement of self-efficacy, see Bandura, 1997) and have been cross-sectional, analysing SCMC as an isolated event. Thus, partially due to limitations related to the research methods and tools employed, a clear link

between the SCMC medium and participation in L2 interaction by low-self-efficacy learners has not been established.

Methodology

The aim of this study is to contribute to a better understanding of whether and how learners' self-efficacy beliefs, on the one hand, and the medium of communication, on the other hand, affect interactive participation patterns. Accordingly, the following research questions were addressed:

RQ1: Does the medium of communication affect the participation patterns of learners with low and high self-efficacy beliefs? If so,

RQ2: How are the participation patterns of two case-study learners affected in their face-to-face and SCMC interactions over time?

In particular, are there any differences in terms of:

- Number of words and turns produced?
- Engagement in negotiation of meaning, as evidenced by Communication Strategies used?
- Speaker roles in discourse co-construction, as evidenced by Speech Functions used?

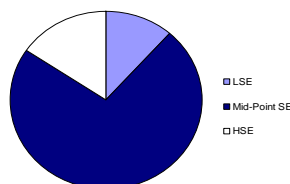
Participants

The corpus used in this paper is part of a larger study, which was conducted at an Australian University involving 51 intermediate Spanish language learners. All learners were native speakers of English and had completed two semester-long courses at beginner level.

Given that the focus of this study is on learners with low and high self-efficacy beliefs, it was deemed necessary to gain a profile of participants' personal variables related to self-efficacy beliefs at the beginning of the study. Consequently, a self-report instrument, the Self-Efficacy survey (available from <http://www.iris-database.org>) was developed and carried out to collect quantitative data on learners' perceptions of their L2 self-efficacy. This Self-Efficacy survey thus provided the basis for participants' selection.

Data relative to the participants' self-efficacy beliefs were collected in semester 1 (i.e. week 2) through 13 statements included in Self-Efficacy survey carried out at the onset of the study. This survey used a 5-point Likert-type scale and was developed by the author based on existing instruments (see <http://www.iris-database.org>). Internal reliability, calculated on the larger sample of 51 respondents, was tested through Cronbach's Alpha, which returned a satisfactory result, at $\alpha = 0.86$ (for detailed information on survey and reliability tests, see Sánchez Castro, 2013).

The results of this survey indicated that the self-efficacy levels reported by the 51 participants ranged between 2.23 and 4.69, with a vast majority of results within the 3 to 4 range ($M = 3.54$, $SD = 0.54$). Therefore, the participants were grouped into three categories: Low Self-Efficacy (LSE = mean score between 2.23 and 2.99; 6 participants, or 11.8%), Mid-point Self-efficacy (MSE = mean score between 3 and 3.99; 37 participants, or 72.5%), and High Self-Efficacy (HSE = mean score between 4 and 4.69; 8 participants, or 15.7%) learners. Figure 1, is a visual representation of the self-efficacy spread.

Figure 1: Self-efficacy groupings

Out of the two groups positioned at either extremes of the scale, only six students participated in all SCMC and face-to-face discussion tasks designed for this study in semester one, namely three learners with Low Self-Efficacy (LSE) and three with High Self-Efficacy (HSE) beliefs. From these six participants, two learners, namely Dina and Rita³, were selected as the foci of this study and analyses. The reason is purely utilitarian. Dina and Rita were respectively identified as having low and high self-efficacy beliefs from the Self-Efficacy subscale results, and participated in all discussion tasks over the two-semester academic year. Focusing on this smaller sample enabled the analysis of data in detail and across time providing the basis for a comparative and longitudinal analysis in order to gain a better picture of the relationship between self-efficacy and participation in face-to-face and SCMC discussions. The data presented in this paper therefore refers to the interactional patterns of these two participants, Dina and Rita, identified as a smaller case-study sample, as well as, in some analyses, to their mid-point conversational partners who formed triads with them in the selected face-to-face and SCMC discussion tasks.

Data Collection Procedures

Data on participants' L2 output in text-based chat (SCMC) and face-to-face (FtF) discussion tasks were collected through chat-log transcripts and audio-recorded FtF interactions, which were transcribed using a standard Conversation Analysis notation system (Jefferson, 2004).

Learners participated in six SCMC and FtF tasks that can be categorised according to the classification proposed by Pica, Kanagy and Falodun (1993), as opinion-exchange tasks, commonly referred to as *discussion tasks*. In completing these tasks, students participated in groups of three and were encouraged to use the target language for purposes similar to those ones encountered in informal social interactions, as in sharing experiences, attitudes, opinions and preferences as well as socialising with peers (Willis, 1996).

This study reports on results relative to 2 discussion tasks held at the beginning of the first semester (FtF1 and SCMC1), 2 discussions held at the end of the first semester (FtF2 and SCMC2), and 2 discussions held at the end of the second semester (FtF3 and SCMC3).

In SCMC1 participants discussed the environment in Australia, while in FtF1 they exchanged information on their outdoor experiences in Australia. In SCMC2 participants explored what makes people happy while in FtF2 they discussed the dreams and aspirations of the protagonist of a story, and how unexpected developments in one's life can affect satisfaction and happiness. In SCMC 3 participants compared views on life and

³Pseudonyms have been used to preserve the participants' anonymity.

family while in FtF3, they discussed their own family ties (see <http://www.iris-database.org> for more information on discussion tasks).

Data Analysis Procedures

Quantitative analyses involved counting the number of words and turns produced in the SCMC and FtF discussion tasks. Speaker's turns were identified based on Eggins and Slade's definition of move as "a unit after which a speaker change could occur without turn transfer being seen as an interruption" (Eggins & Slade, 2004:186). Qualitative analyses focused on participants' use of Communication Strategies and Speech Functions. For this purpose, SCMC and FtF interactions were coded using:

- a) Dörnyei and Kormos' (1998) taxonomy of Communicative Strategies (CS), and
- b) Eggins and Slade's (2004) analytical framework for the identification of Speech Functions (SF).

In the present study, CS are defined as mechanisms intentionally employed in order to solve L2 communication difficulties. From this perspective, which is shared by a number of researchers (e.g. Tarone & Yule, 1987), CS are mechanisms or steps called into action by speakers to compensate for breakdowns in communication.

Dörnyei and Kormos' (1998) taxonomy of CS takes a process-orientated approach, based on Levelt's (1989) model of speech and on its extended application to L2 communication. Compared to previous proposals (e.g. Faerch & Kasper, 1984), Dörnyei and Kormos' (1998) taxonomy takes a step further, as it provides a comprehensive list of problem-solving mechanisms associated with all four sources of L2 communication problems (i.e. linguistic output deficit, error output, other-communication deficit and time pressure), in both message production and reception. These four types of CS are divided further into subtypes. For the purpose of this study, strategies that can only be identified in oral speech (e.g. unfilled pauses) and those that could not be directly observed (e.g. involving speech plan reduction or substitution) were excluded.

In order to provide a more comprehensive picture of learners' social engagement in discourse co-construction, a Systemic Functional Linguistics (SFL) framework was also adopted. According to this approach, interlocutors jointly and dynamically construct social interaction by using language to align themselves with others, and to position themselves in the exchange activity (Halliday, 1985).

Eggins and Slade (2004) classify Speech Functions (SF) into four categories: *Initiate*, *Continue*, *Respond* and *Rejoinder*, depending on the discourse purpose they enact (definitions and examples of SF categories and subcategories are available from <http://www.iris-database.org>). These categories are linked to discourse roles that can be described in terms of a) Dominance, b) Discourse dependency and c) Contribution to the Maintenance of talk.

Dominance reflects how speakers display control over the interaction by leading, or monopolising the use of Opening (*Initiate*) and Sustaining (i.e. *Continue*, *Respond* and *Rejoinder*) moves. Independence is achieved through *Initiate SF*, and *Respond Develop* and *Rejoinder Track SF*. Conversely, Dependence is realised through moves that are elliptically related to prior *Initiate* or *Respond SF* in the form of answers, grants or rejections.

Degrees of Maintenance of talk can be observed through the use of either *Respond*, which complete exchanges, or *Rejoinder SF*, which expand on propositions made by others, hence encouraging further talk. *Rejoinders* can also index independence; this is the case

of *Confront Rejoinders*, which indicate negative alignment and assertively confront other participants' positions.

Results

Participation across media: Quantitative measures

Table 1, summarises results relative to the number of words, turns, and words-per-turn produced in the sampled FtF and SCMC interactions. FtF discussions generated greater numbers of words and turns than SCMC. Furthermore, there was a marked increase in overall word production from the first to the third FtF discussion (FtF1= 2223; FtF2 = 3094; FtF3 = 3655), while with the exception of the SCMC2 discussion, the number of words produced at the onset and at the end of study in SCMC remained stable. Across the study, the average number of words-per-turn remained fairly consistent across the two media. Averages, however, are higher in SCMC than in FtF.

Table 1: Number of Words and Turns produced in the SCMC and FtF discussions

	Words	Turns	Words per Turn
SCMC1	1501	242	6.20
FtF1	2223	530	4.19
SCMC2	865	167	5.17
FtF2	3094	692	4.47
SCMC3	1254	187	6.70
FtF3	3655	843	4.33

Similar differences were observed in relation to Rita and Dina's output. As shown in Table 2, both participants produced more words in FtF than in SCMC with Rita, the LSE learner, consistently producing fewer words and shorter turns than Dina, the HSE learner, in both environments.

Table 2: Words and Turns produced by the LSE and HSE participants in SCMC and FTF

	Rita (LSE)			Dina (HSE)			
	Words	Turns	Words per Turn	Words	Turns	Words per Turn	
SCMC1	232	40	5.80	SCMC1	293	41	7.14
SCMC2	143	27	5.29	SCMC2	209	33	6.33
SCMC3	184	30	6.13	SCMC3	245	30	8.16
FtF1	390	105	3.71	FtF1	490	99	4.94
FtF2	569	153	3.71	FtF2	826	131	6.30
FtF3	587	149	3.87	FtF3	978	180	5.43

We also observe two tendencies according to the medium of communication across the study. While Dina and Rita's frequencies decrease in absolute number of words and turns in SCMC, they increase in FtF. However, Rita and Dina increase the average number of words-per-turn in both environments but more so in SCMC. This seems to indicate that over time, the online medium encourages a higher degree of extended contribution by both the LSE and HSE participants.

As illustrated in Table 3 and Table 4, Rita and Dina's participation patterns vary greatly in relation to their respective conversational partners. Across the year, the average percentage is 33% and 40% for Rita and Dina respectively in SCMC while in FtF, their average percentage is of 35% for Rita and 50% for Dina. In fact, this difference widens at the end of the study. In SCMC3, Rita and Dina produce 33% and 35% of all output respectively. In contrast, in FtF3, Deb contributes to 55% of all output while Rita produces 30% of all output. It can thus be said that, over time, SCMC facilitated a more egalitarian distribution of participation opportunities for the LSE learner.

Table 3: Percentages of Words and Turns produced in SCMC

Rita (LSE)						Dina (HSE)					
	Words		Turns		Words per Turn		Words		Turns		Words per Turn
	Number	%	Number	%	Number		Number	%	Number	%	Number
SCMC1 Rita	232	29.07	40	33.05	5.80	SCMC1 Dina	293	41.67	41	33.88	7.14
Tot Group	798	100.00	121	100.00	3.86	Tot Group	703	100.00	121	100.00	5.80
SCMC2 Rita	143	35.48	27	35.16	5.29	SCMC2 Dina	209	45.23	33	37.50	6.33
Tot Group	403	100.00	77	100.00	5.23	Tot Group	462	100.00	88	100.00	5.25
SCMC3 Rita	184	33.45	30	34.48	6.13	SCMC3 Dina	245	34.80	30	30.00	8.16
Tot Group	550	100.00	87	100.00	6.32	Tot Group	704	100.00	100	100.00	7.04

Table 4: Percentages of Words and Turns produced in FtF

Rita (LSE)						Dina (HSE)					
	Words		Turns		Words per Turn		Words		Turns		Words per Turn
	Number	%	Number	%	Number		Number	%	Number	%	Number
FtF1 Rita	390	34.79	105	36.20	3.71	FtF1 Dina	490	44.46	99	41.25	4.94
Tot Group	1121	100.00	290	100.00	3.86	Tot Group	1102	100.00	240	100.00	4.59
FtF2 Rita	569	40.87	153	42.61	3.71	FtF2 Dina	826	48.53	131	39.33	6.30
Tot Group	1392	100.00	359	100.00	3.87	Tot Group	1702	100.00	333	100.00	5.11
FtF3 Rita	587	31.35	149	32.53	3.93	FtF3 Dina	978	54.85	180	46.75	5.43
Tot Group	1872	100.00	458	100.00	3.86	Tot Group	1783	100.00	385	100.00	4.63

Participation across media: Qualitative measures

Findings on qualitative analyses of Communication Strategies (CS) and Speech Functions (SF) use are presented in the next sections.

Communication Strategies

As it can be seen in Table 5, a markedly higher overall number of CS was observed in FtF compared to SCMC across the academic year.

Table 5: Communication Strategies across media and time

	CS		RD		OO		OP		TP		
	Total	Rita's Group	Dina's Group	Rita's Group	Dina's Group	Rita's Group	Dina's Group	Rita's Group	Dina's Group	Rita's Group	Dina's Group
SCMC 1	55	26	29	19	23	4	4	3	2	0	0
SCMC 2	46	30	16	24	8	1	4	5	4	0	0
SCMC 3	50	25	25	15	13	5	7	4	3	1	0
FtF1	202	120	82	31	31	13	19	15	14	61	18
FtF2	330	156	174	43	60	32	38	22	28	59	48
FtF3	296	132	164	21	36	38	35	21	35	52	58

This result is clearly influenced by the greater output in FtF. However, this factor is not sufficient in explaining the disproportionate greater number of CS observed in FtF (i.e. almost six times greater than in SCMC). Variation is also observed in relation to the types of CS used in the two media. All types of CS are used in FtF, whereas in SCMC, Resource Deficit (RD) strategies are clearly predominant. In also marked contrast, Time Pressure (TP) strategies are practically absent in SCMC, while they represent the most frequently used CS type in FtF.

Own-Output and Other-Performance strategies are also virtually absent in all SCMC discussions. This absence can be due to a number of reasons, including a complete or partial deletion of messages as a result of self-monitoring (which would not be tracked by the chat-log), but also, possibly, to the social aspects of online interaction. Research has suggested that CMC is inherently collaborative (Lamy, 2012), and facilitates solidarity and mutual support through the establishment of online communities (Reinhardt, 2008). Therefore, learners' concerns for self-representation and group solidarity could deter them from using strategies that may be perceived as face-threatening (Brown & Levinson, 1978).

Two tendencies are also observed across time. CS use increases in FtF (from 202 to 296, or +32%), whereas it decreases in SCMC (from 55 to 50, or -9%).

We now turn our attention on Rita and Dina's use of CS in order to provide a more qualitative analysis on how they construct discourse. As illustrated in Table 6, Rita and Dina use TP strategies markedly frequently in FtF while they do not use this CS type in any SCMC discussions. This seems to indicate that in FtF, both learners mainly rely on stalling devices in order to deal with communication pressure while in SCMC, they mainly engage in the use of RD strategies.

Table 6: Communication Strategies by types - Case Study Participants

	Rita (LSE)						Dina (HSE)				
	RD	OO	OP	TP	Total		RD	OO	OP	TP	Total
SCMC1	5	3	1	0	9	SCMC1	11	1	2	0	14
SCMC2	5	1	3	0	9	SCMC2	4	2	3	0	9
SCMC3	9	3	3	0	15	SCMC3	4	2	2	0	8
FtF1	8	6	6	23	43	FtF1	11	8	7	6	32
FtF2	19	13	7	33	72	FtF2	24	13	13	15	65
FtF3	16	18	12	32	78	FtF3	23	21	17	28	89

If we compare the use of RD, OO and OP strategies by Rita and Dina across modes, we can observe higher frequencies registered by Dina than Rita in both environments. Across time in FtF, both participants increase the total number of CS while in SCMC the inverse tendency is observed. We also see that in SCMC, Dina decreases her use of CS, in particular RD strategies, while Rita's overall CS frequencies increase including RD, OO and OP types.

Qualitative analyses, point to interesting differences in the use of RD strategies by the two case-study learners. While all L1-based subtypes of RD were used by both learners in the

two media, L2-based subtypes including Approximation are used exclusively by Dina. Further, while Dina uses Code-Switching to compensate lexical gaps, she also employs Code-Switching to display humour, social affiliation and emotion. This is noted in 3 out of the 15 instances registered in the FtF2 and in 6 out of the 12 instances recorded in FtF3, and is exemplified in Excerpt 1.

Excerpt 1 Example of Code Switching (FtF2)

Line	Participant	Text	Translation
4	WILL	les te gusta hablar con desconocados?	Do you enjoy speaking to “desconocados”[sic] strangers?
5	ALEX	um:	um:
6	WILL	o desconocidos	or “desconocidos”[sic] strangers?
7	ALEX	what’s desconocidos?	what’s desconocidos [sic] strangers?
8	WILL	strangers	strangers
9	ALEX	oh depende el persona (.) hehe por ejemplo (.) me gusta hehe me gusta: hablar con los gentes: ah: estraños (.) en Rundle Mall: ((mocking pronunciation))	oh it depends on the person (.) hehe for example (.) I like hehe I like: talking to people: ah: strange (.) in Rundle Mall: ((mocking pronunciation))
10	DINA	hehe	hehe
11	WILL	estraños?	strange?
12	ALEX	yeah:	yeah:
13→	DINA	strange people haha	strange people haha
14	ALEX	buskers	buskers
15	WILL	ah: hehe	ah: hehe
16→	DINA	haha (.) all buskers are strange haha	haha (.) all buskers are strange haha

In FtF, similar differences are observed within TP strategies used. While Rita, mainly engaged in *Umming and Erring*, Dina favoured L2-based lexicalised subtypes, such as *Filler*, and *Self-Repetition*. That is, those that are more demanding, both linguistically and cognitively.

Other qualitative differences are observed in FtF in relation to Own-Output subtypes. Dina’s use of Accuracy Check seems to have an added focus on own-grammatical accuracy, rather than on the transfer of meaning. *Comprehension Check* is another Own-Output strategy generally used when experiencing difficulty in conceptualising a message in the L2. In this study, however, Dina uses this strategy not only to solve potential problems to do with own output, but also to avoid other-performance communication. As shown in Excerpt 2, taken from FtF2, Dina, uses *Comprehension Check* in order to test her conversational partner’s understanding of the L2 word “confidencia”. In fact, Dina further elaborates her message and provides a translation (see L461) in order to prevent comprehension problems.

Excerpt 2: Example of Comprehension Check and Anticipated Repair (FtF2) - Albert

Line	Participant	Text	Translation
457	Dina	[todo el mundo] en mi familia no: estan (.) orgullo-so	[everybody] in my family are not: (.) proud
458	Carlotta	[proud?]	[proud?]
459	Dina	Si (.) tene- si tenemos: un poco de: no somos orgullosos pero los niños en mi familia: (.) pero tienen↑ (.) no tenemos pt (.) ah (0.1) menos (.) de confianza si? es:	Yes (.) we hav- yes we have: a bit of: no we are proud people but the kids in my family: (.) but they have↑ (.) no we have pt (.) ah (0.1) less (.) confidence ok? It's:
460	Carlotta	menos:	less:
461→	Dina	un poco extraña (.) menos confianza less confidence todos los niños de mi familia	a bit strange (.)less confidence less confidence all kids in my family

As for Other-Performance subtypes, as illustrated in Table 7, Dina mainly uses *Asking for Clarification* and *Asking for Confirmation* across all FtF discussions whereas, Rita mainly uses *Asking for Repetition* and *Non-Understanding*. This differing use of Other-Performance subtypes is interesting since *Asking for Repetition* has been reported in the literature to be used by native speakers in order to provide assistance or negative feedback to L2 learners (e.g. Long, 1996). Similarly, *Asking for Confirmation* and *Asking for Clarification* have been observed (e.g. Nakatami, 2010) when higher proficiency speakers work to repair discourse or avoid breakdown.

Table 7: CS – Other-Performance Subtypes

	Rita (LSE)						Dina (HSE)					
	SCMC			FtF			SCMC			FtF		
	S1	S2	S3	S1	S2	S3	S1	S3	S3	S1	S2	S3
Non-Understanding	1	1	0	2	3	0	0	0	0	0	2	2
Asking for Repetition	0	0	0	3	1	2	0	0	0	0	2	1
Asking for Confirmation	0	1	2	1	3	8	1	2	2	5	3	7
Asking for Clarification	0	1	1	0	0	1	1	1	0	1	2	4
Other Repair	0	0	0	0	0	1	0	0	0	1	4	3

Overall, while analyses of CS provide interesting information and effectively complement the results of quantitative measures for FtF, several questions remain open on the discourse roles played by individual learners. In the next section, the analysis of Speech Functions is presented, in an attempt to provide a clearer picture.

Speech Functions

As shown in Table 8, due to the proportionally greater production of output in FtF, participants used a higher overall number of Speech Functions (SF) in FtF than in SCMC. Interestingly, the FtF mode appears to afford more opportunities for extended discourse, and for opening up exchanges, thus contributing to the maintenance of talk, while the SCMC mode seems to favour reactive roles that close topics, but also initiation of new exchanges. This differing discourse can be traced back to the types of SF used in the two media. That is, while we observe that Rejoinder is the most frequently used SF in FtF, in SCMC, Respond SF is clearly preferred. Added to this, proportionally, Initiate is found clearly more frequently in SCMC (9.8% in SCMC1, 15.6% in SCMC2 and 9.1% in SCMC3) than in FTF (5.1% in FtF1, 6.9% in FtF2 and 4%, in FtF3).

Table 8: Speech Functions (SF) across media and time

	SCMC						FtF				
	INI	CONT	RESP	REJ	Total		INI	CONT	RESP	REJ	Total
SCMC1	20	48	102	34	204	FtF1	21	67	150	159	407
SCMC2	25	31	72	32	160	FtF2	31	78	181	143	443
SCMC3	17	40	70	58	185	FtF3	28	128	246	289	691

Indeed, in SCMC, participants use *Initiation* as a way to maintain the conversation flowing, as a result of the frequent topic shifts observed in online talk. However, as illustrated in Excerpt 3, they also use *Initiation* in order to create multithreaded sequences

(i.e. environmental situation in Australia and personal details in the form of appraisal in this instance).

Excerpt 3: Use of Initiation (SMC1)

Line	Participant	Text	Translation
65	ROB	me pienso el gabierno necesitan empiese hopy	I think that the government needs to start hopy [*today]
66	ANGUS	'hopy'?	'hopy'?
67	ROB	de aquerdo, Angus	ok Angus
68	ROB	hoy	today
69	ROB	nes popy o hopy pero hoy	it is not popy or hopy but today
70	ANGUS	ok..	ok
71→	ROB	que haciste Rita, tu no tiene comentar	.. what did you do Rita,
72→	ANGUS	que podemos hacer todos para preservar el medioambiente?	what can we all do to preserve the environment?

73	ROB	Angus, me major hermana se llama como es tu nombre	Angus, my older sister's name is the same as yours
74	ANGUS	que buena	that's good
75	RITA	que significa hopy?	What is the meaning of hopy?
76	ROB	hopy como as popy pero no espanol en espanol es hoy	hopy is like popy but not in Spanish in Spanish it is hoy
77	ANGUS	entiendes Rita?	do you understand Rita?
78→	ROB	...Angus tu apellido es muy intresante. como es un pais Trinida y Tabago	... Angus your surname is very interesting it is like a country Trinidad and Tobago
79	ANGUS	si si... en el caribe	yes yes ... in the Caribbean
80	ROB	Tu padres es Caribeas?	is your father from the Caribbean?

In contrast, as illustrated in Excerpt 4, in FtF, interactivity appears to be mainly achieved by using *Rejoinder* subtypes that prolong propositions and maintain the negotiation open.

Excerpt 4: Use of Rejoinder (FtF1)

Line	Participant	Text	Translation
167	CINTHIA	ah ah fui a Melbourne (.) muchas veces (.) porque (.) no fui al otro paises	ah ah I went to Melbourne (.) many times (.) because (.) I did not go to other countries
168	CHARLOTTE	y tu quieres? (.) y tu quieres?	and do you want to? (.) do you want?
169	CINTHIA	si [†] el año proximo	yes [†] next year
170→	CELINE	a donde (.) voy a viajar	where am I [*where are you] going to travel
171	CINTHIA	ah España o Suramerica	ah Spain or South America
172→	CELINE	ha (.) durante ah cuanto tiempo	ha (.) during ah how long?
173	CINTHIA	ah voy fui a (.) no voy a estudiar el año proximo (.) voy a trabajar ahorrar dinero y (.) ya pero no se donde (.) tu tienes algun (.) idea=	ah I am going to (.) I am not going to study next year (.) I am going to work and save money and (.) that's it but I do not know where 9.) have you got an (.) idea=
174→	CELINE	=para ti?	=for you?
175	CINTHIA	do you have an idea?	do you have an idea?
176	CELINE	mi hermana (.3) ah viaje en viaje en Suramerica hace s:eis meses le dijo que es un ah es: los pa:ises ahi estan fabulosos	my sister (.3) ah travel in travel in [*around] South America si:x months ago to her [she] told that it is a ah it is: coun:tries there are fabulous

Focusing on Rita and Dina's use of SF, some interesting results emerge. As illustrated in Table 9, across all FtF discussions, Dina consistently produces higher frequencies of SF

than Rita. However, in SCMC, at the end of semester 1, the number of SF used by the two learners is almost equal (29 for Rita and 26 for Dina) and in SCMC3, Rita even uses a markedly higher number of SF than Dina (42 and 27 respectively).

Table 9: Speech Functions across media and time - LSE and HSE groups

	Rita (LSE)						Dina (HSE)				
	INI	CONT	RESP	REJ	Total		INI	CONT	RESP	REJ	Total
SCMC1	4	3	10	5	22	SCMC1	6	15	13	7	41
SCMC2	4	5	15	7	31	SCMC2	6	4	9	5	29
SCMC3	4	12	13	14	42	SCMC3	3	7	10	7	27
FtF1	3	9	33	26	71	FtF1	4	19	44	28	95
FtF2	7	14	45	30	96	FtF2	6	19	37	41	103
FtF3	5	20	56	35	116	FtF3	7	36	40	44	127

Other interesting trends can be noted in relation to the type of SF used across the two media. In FtF, both learners favour *Respond* and *Rejoinder*, while in SCMC they use *Respond* more frequently. It should be noted that Rita favours *Respond* regardless of the media at the beginning and end of Semester 1. This suggests that, at the onset of this study, the LSE participant mainly takes on reactive roles in both media. On the other hand, in FtF, Dina seizes more opportunities for sustaining own discourse and for contributing towards the achievement of interactivity by elaborating on her own utterances as well as on contributions by other participants.

At the end of the study, however, in SCMC3, Rita not only controls the choice of topic in a similar manner to Dina, as evidenced by their similar frequencies of *Initiate*, but also takes on a more active role in the elaboration of exchanges when responding to other conversational partners. This is indicated by Rita's higher frequencies of *Continue* (Rita: 12 and Dina: 7) and *Rejoinder* (Rita: 14 and Dina 7).

The marked increase in the use of *Rejoinder* by Rita in SCMC3 is especially relevant given that, unlike *Respond* moves which close off exchanges, *Rejoinder* moves allow speakers to maintain the negotiation open, sustain exchanges and achieve interactivity. It is also interesting to note that Rita does not use *Rejoinder Confront* in FtF, whereas she does in SCMC at the end of this study, when she uses *Rejoinder Confront* in a similar way to that displayed by the HSE participant (Rita: 2 and Dina: one) across media and time.

Excerpt 5 illustrates Rita's increased interactive discourse in SCMC. Here, we observe her use of two types of Rejoinder SF: *Clarify*, which is used to express willingness to maintain contact (L82 and L89) and *Probe*, used to promote the highest amount of continued talk (L106). Further, we also observe how her exchanges are sustained by confronting other people's propositions by explicitly challenging her conversational partners' views, either seriously (L80) or with a humorous tone (L120).

Excerpt 5: Use of Clarify, Probe and Rebound by RITA (SCMC2)

Line	Participant	Text	Translation
76	RITA	cuando yo fue un nina todos las cosas fue muy simple	when I was a girl all things were very simple
77	SEAN	me parece que todos los dias de ninhood era feliz	I believe all my childhood was a happy period
78	RITA	no tanto problemas como ahora, no chicos, no mal amigos	not so many problems like now , no bad Friends
79	NOELLE	cuando fui una nina los dias fue muy complicados	when I was a girl it was always very complicated
80	RITA	no es posible Noelle	that cannot be Noelle
81	NOELLE	es posible	it can be
82→	RITA	que fue complicado cuando tu fue un nina?	what was complicated when you were a girl?
83	SEAN	complicado con que?	complicated in relation to what?
84	NOELLE	mi familia, y mi amigos, mi colegio	my family, my friends, my school
85	NOELLE	no chico? y tu piensas estas bien?	not boys? And you think you are all right
86	RITA	yo hablo de cuando tu fue 4 or 8 anos	I am talking about the time I was 4 or 8 years old
87	NOELLE	no es complicado pero es bien?	it is not complicated but it is ok?
88	SEAN	cuando era nino simplemente jugaba, comia todas cosas, incluye el tierra y no hay problemas	when I was a boy I just played, I used to eat everything, even soil and there were no problems
89	RITA	que , no comprendo?	what?, I do not understand
...			
105	SEAN	el agua tan azul	waters so blue
106→	RITA	y chicos bonitos?	and handsome boys?
107	NOELLE	es un pais muy interesante y los gentes no son complicados	it is a very interesting country and its people are not complicated
108	SEAN	claro	of course
109	NOELLE	no, pero los chicas son bonitas	no, but the girls are beautiful
110	RITA	no quiero visitar Samoa	I do not want to visit Samoa
111	NOELLE	hahaha	hahaha
112	SEAN	podemos aprender de esos hombres	we can learn about those men
113	SEAN	porque no quieres visitar	why don't you want to visit it
114	RITA	porque Samoa no tiene chicos bonitos, yo no soy homosexual	because Samoa does not have handsome boys, I am not homosexual
115	NOELLE	samoa curo mi espiritu	Samoa healed my soul
116	RITA	ha ha	ha ha

117	NOELLE	pero la comida es malo!	but food is bad!
118	SEAN	entonces, necesitas llevar algunos chicas	then, you need to take girls
119	SEAN	chicos	boys
120→	RITA	o, entonces yo no voy a visitar Samoa	o[*oh] then i will not visit Samoa
121	NOELLE	no dicho nunguno	I said none [*nothing]

Discussion

In response to the Research Questions that guided this study, quantitative and qualitative analyses identified some differences in participation patterns across media. At the onset of this study, measures of output production point to greater participation in face-to-face than in text-based chat. In fact, participants used more than double the amount of words and turns in face-to-face than in SCMC. The need for text-based chat exchanges to be typed, and the consequently slower pace of interaction can, in part, explain these results. On the other hand, the quality of output produced in SCMC appears to be more developed, as indicated by the greater average ratio of words-per-turn.

Communication Strategies were used more often in face-to-face than in SCMC. In fact, CS strategies were observed rather infrequently in SCMC. Across the study, the LSE and HSE learners increased their use of CS in FtF. This increase could indicate that, as the academic year progressed, the growing complexity of the linguistic input and output required by the discussion tasks increased the need to pre-empt and solve communication difficulties. In contrast, CS use decreased in SCMC across this study. Although it is possible to attribute these differences to differing group dynamics and topic interest, it can also be hypothesised that, at the end of the academic year, participants did not feel the need to revert to their L1, or to use other compensating mechanisms, when interacting in SCMC. Arguably, as also reported by CMC research (e.g. Reinhardt, 2008), this can be due to the reviewable nature of communication and the relative slow pace of interaction observed in SCMC. In other words, in SCMC, participants may have made better use of their cognitive resources to plan their utterances by taking advantage of other conversational output and of the slower pace of interaction given that time pressure is lessened in comparison to FtF interaction. Due to the reviewable nature of SCMC, learners may also have learnt to resolve potential misunderstanding by rereading the source of communication difficulty. This, in turn, could also reduce the need for Other Performance strategies in text-based chat. It is also possible that, given that other-initiated repair is relatively infrequent in conversation due to its face-threatening nature (Schegloff, 1979), the use of Other-Performance may be even more discouraged in a written mode of communication where corrections are more salient and have a more 'permanent' status. This is in line with other research reporting on how users' perceptions of the mode of communication influence their behaviour (e.g. Thomas, 2012).

Besides the mode of communication, self-efficacy played a crucial role in influencing the participation patterns observed in this study. In terms of quantitative output production results, the LSE learner produced a lower number of words and turns, as well as shorter turns compared to the HSE learner, in both the two environments. It should be noted however, that in SCMC the output produced by the LSE participant is more developed than in FtF as evidenced by the markedly higher ratio of words-per-turn in all SCMC discussions.

In line with SLA literature (e.g. van van Lier & Matsuo, 2000), the quantitative analysis on CS use also indicates that similarly to higher proficiency learners' behaviour, the HSE

participant dominates at using Resource Deficit, Own-Output and Other-Performance strategies in all face-to-face discussions.

Qualitative differences in the use of CS also observed between the HSE and LSE participants further support the role played by learners' self-efficacy beliefs. In FtF, while the LSE learner mainly favours strategies that rely more on her L1 and on assistance from other participants to solve communication difficulty, the HSE participant establishes dominance in her competence in the L2 by using L2-based *Approximation* and localised recasts (i.e. *Asking for Confirmation and Asking for Clarification*) and more cognitively demanding lexicalised subtypes of Time Pressure strategies. However, in SCMC, both learners used Resource Deficit types in similar ways. In other words, only in SCMC, the behaviour exhibited by LSE learner partly approximated that of the HSE participant.

While these data provide interesting information on the LSE and HSE learners' behaviour in FtF, CS were observed so infrequently in the SCMC discussions that it was impossible to make any reliable comparison between the two media. As previously discussed, this may be due to several factors, including the amount and type of data available through chat-logs. Regardless of its causes, this could have led to conclude that text-based chat does not provide as many opportunities for negotiation of meaning and collaborative discourse construction as face-to-face interaction, particularly for learners with low self-efficacy beliefs. The analysis of SF, however provided a different story. SF data supports the view that face-to-face, interactions were dominated by Dina, the HSE learner and that conversely, the online mode provided greater opportunities for Rita, the LSE learner, to take on an active role in discourse co-construction.

Data shows that in FtF, Dina, the HSE participant, employs SFs that allow her to control and expand topics. In this mode, Dina also challenges other participants' propositions hence taking on the authoritative role described by Yim (2005) as Information Provider and Evaluator. Therefore, it can be said that the face-to-face mode provides more opportunities for the HSE learner to take on a dominant role in leading interactions, elaborating on others' contributions, and sustaining exchanges.

In contrast, SCMC seems to provide a level field for Rita. While in FtF Rita mainly employs Respond SF, thus taking on a dependent reactive role, in SCMC, she actively participates in collaborative discourse construction by using Rejoinder subtypes. Moreover, in SCMC, Dina and Rita exhibit independence in similar ways, by using Rebound to challenge other participants' views. Furthermore, at the end of this study, Rita increases the ratio of SF she uses, particularly *Continue and Rejoinder* types, in comparison to her conversational partners, and even employs a higher number than Dina. Rita thus shows her ability to establish dominance by sustaining her own discourse. This suggests that the gap between the HSE and LSE participants in terms of discourse sustainability and interactivity in SCMC can close over time.

Taken together, these results on SF use suggest that SCMC afforded more opportunities for equal interactional control and discourse management by all conversational participants, including those with lower self-efficacy beliefs.

Conclusion

This study thus demonstrates the importance of adopting a longitudinal framework, as well as of combining quantitative and qualitative measures of learner participation, in order to provide a deeper understanding of the role of self-efficacy and communication mode. While quantitative data and CS analysis provided a partial account of learners' behaviour, the positive effect of SCMC for the LSE learner only became apparent over

time, and when fine-grained, qualitative analyses were carried out using Speech Functions categories borrowed from Systemic Functional Linguistics. It can therefore be concluded that the methodology employed in this study represents a promising avenue for further research on SCMC participation by learners with differencing self-efficacy beliefs.

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