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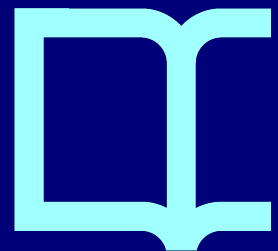
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4 Online speaking interaction in foreign languages

How and why do students experience anxiety?

Blanca Cristòfol Garcia and Christine Appel

Introduction

Foreign language (FL) learners' feelings and emotions play a crucial role during their learning experience (e.g., Arnold, 1999; Dewaele, 2010; MacIntyre & Gregersen, 2012). Some of these emotions, such as foreign language anxiety (FLA), are considered an obstacle in the path of acquiring a new language (Pavlenko, 2011).

According to Baralt and Gurzynski-Weiss (2011), most studies show a negative effect of FLA on the learning outcomes: in fact, this emotion has adverse academic, cognitive and social effects on language learners (MacIntyre, 2017). FLA was first described by Horwitz, Horwitz and Cope (1986, p. 128) as “a distinct complex of self-perceptions, beliefs, feelings, and behaviors related to classroom language learning arising from the uniqueness of the language learning process”, and it has been mostly related to the oral aspects of FL use (Horwitz, 2001).

Despite the fact that speaking interaction in an FL might be anxiety-provoking itself (Appel, 2012), learners are usually more interested in developing their oral competences in an FL rather than the written ones (Lindenau, 1987). However, creating speaking opportunities in traditional classroom environments is difficult (Li, 2014), and it is one of the main challenges in the context of online education. Thus, the use of videoconferencing technologies to support learner–learner interaction for language learning has become a growing object of study (Hopkins, 2010; O'Rourke & Stickler, 2017).

Jauregi (2015) reports that interaction via videoconference is more anxiety-provoking than interaction through other communication channels, such as chat. Nevertheless, to date, the study of FLA has received little attention in online environments (Bollinger & Wendt, 2016). Some of the latter research has focused on asynchronous computer-mediated communication (ACMC) learning practices (e.g., B ark anyi & Melchor-Couto, 2017; McNeil, 2014), while recently, some studies have started to focus on SMC speaking practices in learning contexts such as Second Life projects (e.g., Kamali Arslantaş & Tokel, 2018; Melchor-Couto, 2017) or bilingual e-tandem exchanges (e.g., El-Hariri, 2016; Martin &  lvarez Valdivia, 2017). Therefore, this study focuses

on FLA in online learner–learner speaking interaction in a common target language (TL) in order to gain a better understanding of learners’ emotions in new learning environments. It is a still vaguely explored topic of research that contributes to a better understanding of learners’ emotions in new learning environments.

Dynamic research approaches to FLA

At the end of the twentieth century, Larsen-Freeman (1997, p. 142) drew “attention to the similarities among complex nonlinear systems occurring in nature and language and language acquisition”. During the following decade, complex and dynamic systems theories started to be applied in second language acquisition (SLA) (Larsen-Freeman & Cameron, 2007; De Bot, Lowie & Verspoor, 2007; Verspoor, Lowie & Van Dijk, 2008). These argue that language systems are, amongst others, dynamic, open, unpredictable, sensitive to initial conditions, self-organizing and adaptive. In fact, when learning an FL, emotions change moment-to-moment, and one single event might affect one learner’s experience unexpectedly, causing a nonlinear effect over it (Gregersen, MacIntyre & Meza, 2014).

Considering the complexity of FL learners as individuals (Dörnyei, 2017), and taking into account the impact of emotions in their FL learning process (Boudreau, MacIntyre & Dewaele, 2018), some researchers started to study the affective dimension of FL learners from a dynamic approach. For instance, Dörnyei, MacIntyre and Alastair (2014) collected and reviewed several empirical studies that apply the dynamic systems theory (DST) to research on language learning motivation. Shirvan and Talebzadeh (2018) studied learners’ foreign language enjoyment (FLE) from a dynamic perspective, and MacIntyre and Legatto (2011) used the idiodynamic method (MacIntyre, 2012), a novel research method, to understand the dynamics of individuals’ willingness to communicate. As concerns FLA, a pioneer study carried out by Gregersen et al. (2014) for the first time used the idiodynamic method to analyze the moment-to-moment fluctuations of this variable.

MacIntyre (2012) developed *the idiodynamic method*, which allows researchers to study the fluctuations of learners’ emotional and affective variables from a dynamic approach. It has been used to study, amongst others, learners’ FLA on a per-second scale during a communication event (e.g., Boudreau et al., 2018; Gregersen, MacIntyre & Olson, 2017).

The method consists of four steps (MacIntyre & Legatto, 2011, p. 152):

- 1 A communicative activity is video recorded.
- 2 The participant watches the video recording and simultaneously self-rates, moment-to-moment, the variable that is being assessed. This is done with a specific software that produces a graph with the fluctuations in the self-rating.

- 3 In a stimulated recall interview (Gass & Mackey, 2000), the graph obtained is shown to the participant who is asked to explain the reasons for the fluctuations in the self-rating.
- 4 The session is transcribed.

Methodology

The present study aims to understand the nature of participants' FLA in learner-learner speaking interaction in an online environment, by addressing the following research questions:

RQ1: Why do learners experience FLA while participating in online speaking interaction activities in pairs?

RQ2: How does FLA change over time during an online speaking interaction activity in pairs?

Sample

The participants of the present study were 15 adult FL learners selected out of a total of 732 enrolled students in *SpeakMOOC*, a free and open online English speaking course. The selection followed a *random sampling* procedure (Creswell, 2015), the criteria of which were two: (a) subjects had to be enrolled in the course, which required learners to be 18 or older, and (b) subjects had to have completed at least one speaking activity in pairs.

The sample was composed of 12 females and 3 males aged between 25 and 50. According to their scores measured by the Foreign Language Classroom Anxiety Scale (FLCAS; Horwitz et al., 1986), 8 of them (6 females and 2 males) were low anxiety participants (LAPs), and 7 of them (6 females and 1 male) were high anxiety participants (HAPs). All participants had received formal instruction of English as an FL for at least 6 years, and they had an Upper Intermediate or Advanced level of English as an FL. All of them had previous experience with online courses, although none of them had already participated in an online course for English speaking skills such as *SpeakMOOC*.

Out of the 15 participants, 13 were bilingual (11 in Spanish and Catalan, 1 in Spanish and French and 1 in Spanish and Bulgarian). The remaining two were monolingual Spanish speakers. All of them were residing in Spain at the moment of the study.

Research context

SpeakMOOC, the research context of this study, is a free and open online course supported by the *SpeakApps* platform. This is a free and open online platform that collects ICT tools to foster foreign language learning (www.speakapps.eu/about/). It had a duration of 5 weeks between April and May 2018. It consisted of a series of speaking activities in English designed to

be undertaken synchronously in pairs via videoconference. The course was facilitated by an English as an FL teacher who guided the students during their experience in *SpeakMOOC*, posting encouraging videos and messages in the virtual classroom.

In this virtual classroom, participants could team up at random using the *Roulette Tandem* tool or could choose a specific speaking partner with the *YouChoose Tandem* tool. In the first case, if participants indicated willingness to do a tandem, the system put them in a virtual ‘waiting room’ while it went looking for an available partner in order to match them. In this case, the speaking activity to be undertaken in pairs was assigned randomly.

In the second case, participants pre-arranged their tandem meetings by posting in a *Wiki Document*, each week, their availability. With the *YouChoose Tandem* tool, they selected the participant they wanted to meet and also the activity they wanted to carry out together.

In both options, when the two learners were connected and the videoconference started, the tandem tool launched an activity, showing its tasks in real time. Depending on the type of activity, these contents could be different for each interlocutor, making it possible to carry out information gap activities which prompted truly spontaneous conversations (Appel, Nic Giolla Mhichíl, Jager & Prizel-Kania, 2014).

The available activities changed each week, as did the speaking topic they were based on. Despite the different topics, the design of the activities always followed the same patterns and had a similar level of difficulty, using Robinson’s

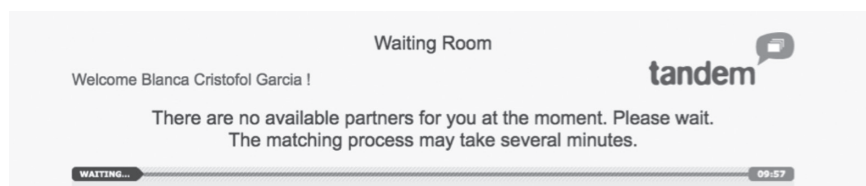


Figure 4.1 Interface of the waiting room in the Roulette Tandem

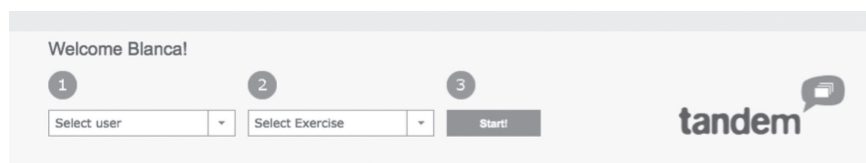


Figure 4.2 Interface of the YouChoose Tandem option before selecting a speaking partner and an activity

criteria from the framework for task complexity (Robinson, 2001). For every speaking topic, there was an activity of each of the following types: (a) spot the difference; (b) problem solving; (c) conversation based on an article; and (d) free conversation. All activities contained up to three speaking tasks.

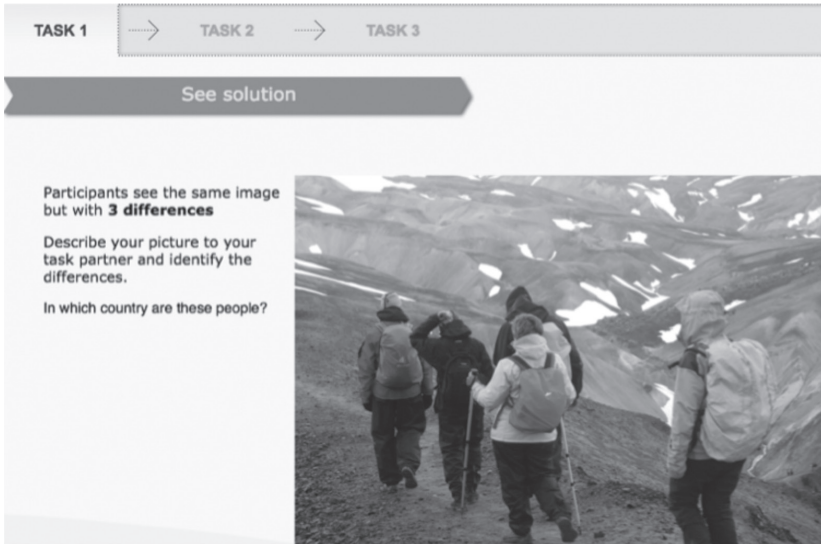


Figure 4.3 Interface of a spot the difference task in *SpeakMOOC*. Speaking topic: Globalization



Figure 4.4 Interface of a problem-solving task in *SpeakMOOC*. Speaking topic: Food

TASK 1 → TASK 2 → TASK 3

See solution

For this task you need to read the article *The 7 Habits of Happy People*, available in the classroom.

Here you can see 5 of the habits mentioned in the article, which are the missing two habits?

The 7 Habits of Happy People

1. Spiritual engagement and meaning
2. Relationships
3. Positive mindset
4. Acts of kindness
5. Strengths and virtues
6. ?
7. ?





Figure 4.5 Interface of a conversation based on an article task in *SpeakMOOC*. Speaking topic: Happiness

TASK 1

See solution

Choose one of the following topics and discuss.

1. Social media How often do you use social media websites and apps? What do you use them for? Why do you think people spend so much time using social media? What are the main concerns related to social media? How can we deal with those concerns?



2. Internet Shopping Do you ever shop online? Why/Why not? Are there any particular products that you prefer to buy online? What are the advantages of online shopping? What are the main problems people face when shopping online? Do you think online shopping will replace shopping in the high street? Why/Why not?




Figure 4.6 Interface of a free conversation task in *SpeakMOOC*. Speaking topic: Digital life

Data collection

The study used a mixed-methods approach, subsequently collecting three different sets of data. Beforehand, participants were classified as HAPs or LAPs, according to their scores on the FLCAS (Horwitz et al., 1986). This anxiety scale focuses on oral FL use (Horwitz, 2010), and despite having been criticized by some scholars, it has been considered a reliable tool (Dewaele, 2013) and has been widely used to assess learners' tendency to experience FLA (e.g., Dewaele & MacIntyre, 2014; MacIntyre & Gregersen, 2012).


Although the original FLCAS has 33 items, in this study we used the 23 items which, according to Park (2014), encompass the two factors central to this study: *communication apprehension and understanding* and *communication apprehension and confidence*. Since all participants of the present study were native speakers of Spanish, we used the items of the validated Spanish FLCAS (Pérez-Paredes & Martínez-Sánchez, 2000).

Phase I: Anxometer scores


Once participants had answered the FLCAS, they started the course, in which they completed several speaking activities in pairs using a videoconference tool, *VideoChat*, which was integrated into the *SpeakMOOC* platform. Thus, to complete a speaking activity, participants were asked to have (a) a computer, as the *VideoChat* system is not supported by tablets or mobile phones; (b) a good Internet connection; (c) headphones to avoid echo sounds; and (d) a microphone. All the activities were designed to be completed in 30 minutes approximately.

After every speaking task, an Anxometer appeared automatically on participants' screens. The Anxometer is a one-item instrument used to measure the anxiety experienced at a given moment in time (e.g., Bielak & Mystkowska-Wiertelak, 2018). As shown in Figure 4.7, the Anxometer in this study measured participants' FLA in an 11-point Likert scale, from "extremely comfortable" (-5) to "extremely nervous" (+5).

Durante esta tarea me he sentido...*



-5	-4	-3	-2	-1	0	1	2	3	4	5
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Muy tranquilo
Muy nervioso

Todos los campos marcados con asterisco (*) son obligatorios

Figure 4.7 Adapted version of the Anxometer used in this study

Phase II: semi-structured interviews

In this phase, semi-structured interviews were carried out via Skype. The interviews were recorded with the *Screencast-o-matic* screen recorder and transcribed afterwards. Due to problems of availability, only 8 of the initial sample of 15 subjects were interviewed. According to their scores in the FLCAS, half of the interviewees were HAPs and the other half LAPs, so both types of students are equally represented.

In the interviews, participants described their FLA perception while participating in *SpeakMOOC* and the causes of feeling nervous or comfortable while interacting online in an FL with another learner.

Phase III: idiodynamic data collection

The third data collection phase required the presence of a researcher while participants carried out the task, as well as a face-to-face meeting afterwards. Due to the scope of this study, geographical and time-related issues as well as the complexity of this phase of the study, only one HAP and one LAP were selected from the sample: two females, Bea (HAP) and Melania (LAP). (These names are fictitious in order to respect the privacy of the participants of this study.) Both are bilingual in Spanish and Catalan and were 28 years old at the time of the study. They separately went through the four steps of the idiodynamic method:

- Speaking task in pairs: Each participant undertook one spot the difference speaking task in *SpeakMOOC*, recorded using *Screencast-O-Matic*, with a speaking partner assigned by a researcher. The partner was, in both cases, another female who had the same level of proficiency and who had not yet been their speaking partner.
- Idiodynamic self-ratings: Immediately after finishing the speaking task, participants watched their videos and self-rated their FLA on a per-second timescale using the specialized software *Anion Variable Tester V2*. The software allowed them to rate their FLA from -5 to +5 by clicking the computer mouse. Not clicking the mouse resulted in a zero rating for that second. Once the participants finished their self-rating of FLA, the software produced a graph with their FLA fluctuations.
- Stimulated recall interview: Participants explained to the researcher the reasons for the spikes and dips of their self-rating of FLA while observing the graph together.
- Transcription of the interviews.

Results and analysis

Having classified the participants as HAPs or LAPs beforehand using 23 items of the FLCAS (Park, 2014) helped us understand the appraisals that learners brought to this FL learning situation (Gregersen et al., 2014). A scale analysis

showed excellent internal consistency (Cronbach's alpha = 0.92) for the items of the *communication apprehension and understanding* factor and acceptable internal consistency (Cronbach's alpha = 0.75) for the items of the *communication apprehension and confidence* factor.

Anxometer data analysis

Table 4.1 contains a summary of the data gathered by the Anxometer during the speaking tasks. The 15 participants are grouped as HAPs (n=7) and LAPs (n=8). Since not all completed all the types of speaking activities available in the course, n changes depending on the subjects who took part in each type of activity.

It is relevant to stress the fact that HAPs show a tendency to experience more FLA than LAPs and vice versa. In fact, there is no task where this tendency reverses. Also, taking into account that the Anxometer was a Likert scale where +5 meant "extremely nervous" and -5 meant "extremely comfortable", it is worth mentioning that none of the participants rated their emotional state above zero, which is reflected in the table.

Regarding the different speaking activities, due to the limited participation of subjects in some types of activities, it is difficult to identify which ones were more anxiety-triggering for them.

Semi-structured interviews data analysis

Semi-structured interviews (with 4 HAPs and 4 LAPs) allowed us to get more detailed information of participants' perceptions of their FLA while taking part in *SpeakMOOC*. After analyzing the content of the interviews, a series of anxiety-triggering elements and anxiety-reducing elements, summarized in the following tables, were identified.

Table 4.1 Quantitative data collected by the Anxometer (+5 "extremely nervous"; -5 "extremely comfortable")

<i>FLCAS</i>	<i>Speaking Activity</i>	<i>n</i>	<i>Mean FLA ratings</i>	<i>SD</i>
HAPs	Spot the difference	6	-2.26	1.32
	Problem solving	4	-3.45	1.98
	Conversation based on an article	2	-2.88	0.32
	Free conversation	1	-4.33	.
LAPs	Spot the difference	7	-3.41	0.61
	Problem solving	3	-3.62	1.41
	Conversation based on an article	3	-3.52	0.97
	Free conversation	2	-4.50	0.71

Table 4.2 Anxiety-triggering elements in SpeakMOOC

FLCAS	Participant	Speaking partner		Course activities		Online environment	
		Partner with different level of FL	Not knowing the partner	Non-familiarity with the activities	Speaking in an FL	Use of technology	Poor audio quality
LAPs	Pedro						
	Lola	X					
	Sara						
HAPs	Melania		X	X	X	X	
	Marta	X					
	Bea		X	X	X		
	Maria	X	X	X			X
	Carol			X			

Table 4.3 Anxiety-reducing elements in SpeakMOOC

FLCAS	Participant	Speaking partner			Course activities			
		Partner with same level of FL	Partner NNS of the TL	Knowing the partner	Feedback from the partner	Familiarity with the activities	Non-assessment of the activities	Speaking topic
LAPs	Pedro					X		
	Lola	X	X			X		
	Sara	X		X		X		X
HAPs	Melania	X						
	Marta					X		
	Bea	X	X					
	Maria	X		X		X		X
	Carol						X	

Pedro and Sara, two LAPs, did not mention any element that made them feel anxious during their participation: they felt absolutely comfortable while completing the speaking activities. Yet, both students mentioned at least one element that made them feel comfortable. Similar findings were reported by Gregersen et al. (2014), who found that HAPs tended to mention more anxiety-triggering elements than LAPs after carrying out an FL speaking activity in a traditional classroom environment.

As to the element of the speaking partner, 1 LAP and 2 HAPs pointed out that having a partner with a different level of FL proficiency made them feel nervous.

I don't like speaking with people who have a higher level of English than me because I don't feel comfortable. That's not because I don't like it, but because I feel like I am slowing them down.

(Lola, LAP)

Conversely, 3 LAPs and 2 HAPs pointed out that having a speaking partner with their FL proficiency level made them feel at ease. Coleman and Klapper (2005) stated that when 2 speaking partners of the same TL have different levels of proficiency, the speaking activity becomes more demanding. These findings are also reflected in the anxiety that some participants experienced in *SpeakMOOC* due to the deviant proficiency level of their speaking partners.

Still concerning the speaking partner, the fact that the speaking interaction involved non-native speakers (NNSs) of the FL made two participants, one HAP and one LAP, feel comfortable.

If my speaking partner was a native speaker of English, maybe I would have been shyer, because in that case, the other person would have known much more English than I do.

(Sara, LAP)

This was expected to be an anxiety-reducing element of *SpeakMOOC*, since previous studies, such as Kamali Arslantaş and Tokel (2018), found that FL learners felt anxious when facing SCMC with native speakers of their TL. Another element related to the speaking partner was mentioned by 2 LAPs and 1 HAP who reported that not knowing their speaking partner before the speaking activity made them feel nervous. The uncertainty thus caused has been revealed to be a trigger for FLA (e.g., Appel, 2012; El-Hariri, 2016). Maria, one HAP, explains how she felt while the *SpeakMOOC* system was assigning her an available partner randomly:

You are there waiting for a partner without having an idea of who will come across you. This might cause you a feeling of nervousness because you think: how will s/he be? how will s/he speak?; what will we do? For this reason, I always chose to speak with the same person.

(Maria, HAP)

In contrast, knowing the partner before engaging upon a speaking activity, was mentioned as an anxiety-reducing element by 1 LAP and 2 HAPs. “Knowing a little bit my partner before doing an activity made me feel comfortable” (Bea, HAP).

Lastly, as regards the speaking partner, receiving feedback from the partner was anxiety-reducing to one HAP. Regarding learners’ feedback and FLA, Martin and Álvarez Valdivia (2017) pointed out the potential of feedback as an anxiety-reducing source in SCMC speaking activities. “I felt more and more confident thanks to my partners’ corrective feedback. They made me realize some mistakes I made that I was not aware of before” (Carol, HAP).

Concerning the course activities, non-familiarity with them was the anxiety-triggering element most mentioned by the participants, who generally agreed with the fact that they felt more nervous while doing their first speaking activity in *SpeakMOOC* than during the following ones. Conversely, having previous experience doing tandems was mentioned by two HAPs and two LAPs as an anxiety-reducing element. “During the third tandem I was feeling more comfortable. I felt more secure when speaking in English too, because of my previous experience in *SpeakMOOC*” (Melania, LAP).

In a similar study, Arnold (2007) also found that learners’ previous experience within the learning environment had an anxiety-reducing and self-confidence-increasing effect on the majority of subjects. Furthermore, speaking in an FL in itself was another source of FLA expressed by one HAP and one LAP. This source of FLA was also suggested by Appel (2012), who explains that in CMC, speaking in an FL might be even more difficult, because in online environments, learners cannot rely on body language. “When I first started to speak in English in this course, it took me a lot of effort” (Carol, HAP).

Still concerning the course activities, two other elements were, at least once, mentioned as anxiety-reducing factors. First, one HAP brought up that the speaking topics of the activities made her feel at ease. In fact, all the speaking tasks were designed in order to increase participants’ motivation, as suggested by Mullen, Appel and Shanklin (2009) in a study focused on a task-based FL speaking project via Skype. “The variety of speaking topics in *SpeakMOOC* made me feel confident” (Maria, HAP).

Second, the fact that these activities were not assessed was mentioned by one LAP as an anxiety-reducing element. This is in line with Horwitz and Cope (1986), who state that students tend to experience more FLA in assessment situations. “If you know you are doing an exam or you are being evaluated, you feel nervous [. . .]. Since in *SpeakMOOC* we were not being evaluated, I did not face that problem!” (Lola, LAP).

Regarding the online environment, the use of technology was mentioned by two participants, one HAP and one LAP, as an anxiety-triggering element of *SpeakMOOC*. However, in both cases, it was identified as a source of anxiety they experienced before starting the speaking activity, while trying to establish a connection with their speaking partners. The anxiety caused by the use of

technology vanished once the videoconference session was established and the conversation started. “Technology problems might make you feel nervous but this will not affect you when speaking in English. Once you are finally connected, you feel like you’re ready” (Melania, LAP).

The fact that the use of technology was mentioned only by two participants as a source of anxiety matches with similar findings reported by Baralt and Gurzynski-Weiss (2011), who did not find significant differences between the FLA levels experienced by FL learners who participated in task-based speaking activities via SCMC and in face-to-face environments. Finally, in relation to the online environment, one HAP mentioned that moments of poor audio quality made her feel nervous.

Idiodynamic data analysis

Table 4.4 shows the quantitative data gathered from the idiodynamic self-ratings of FLA that Bea (HAP) and Melania (LAP) made.

Bea spent 7 seconds of the speaking activity in the high anxiety zone, 31 seconds in the low anxiety zone and 232 seconds in the neutral zone. Thus, she spent 2.6% of the time in the anxiety zone, 11.4% of it in the low anxiety zone and 86% in the neutral zone. The mean of her FLA ratings is -0.15, and the ratio of the spikes and dips in her ratings is 27:23.

Melania (LAP) spent 7 seconds of the activity in the high anxiety zone, 34 seconds in the low anxiety zone and 216 seconds in the neutral zone. Thus, she spent 2.7% of the time in the anxiety zone, 13.2% of it in the low anxiety zone and 84.1% in the neutral zone. The mean of her FLA ratings is -0.3. The ratio of spikes and dips in her idiodynamic ratings was 23:23. The ratio was calculated counting each upward or downward variation in the idiodynamic trend, and it shows the changing nature of this variable (De Bot et al., 2007; Larsen-Freeman & Cameron, 2007).

The dynamicity of FLA is also represented in the two figures shown here, which stem from idiodynamic data for each participant. They are followed by a summary of the events that caused the spikes and dips in the FLA reported in the stimulated recall interview. Events in Figures 4.8 and 4.9 are indicated by arrows.

Table 4.4 Melania (LAP) and Bea (HAP) idiodynamic data

<i>Participant</i>	<i>Speaking time</i>	<i>Ratio of spikes and dips</i>	<i>Seconds in high anxiety zone (above 0)</i>	<i>Seconds in low anxiety zone (below 0)</i>	<i>Seconds in neutral anxiety zone (0)</i>
Bea (HAP)	270	27:23	7	31	232
Melania (LAP)	257	23:23	7	34	216

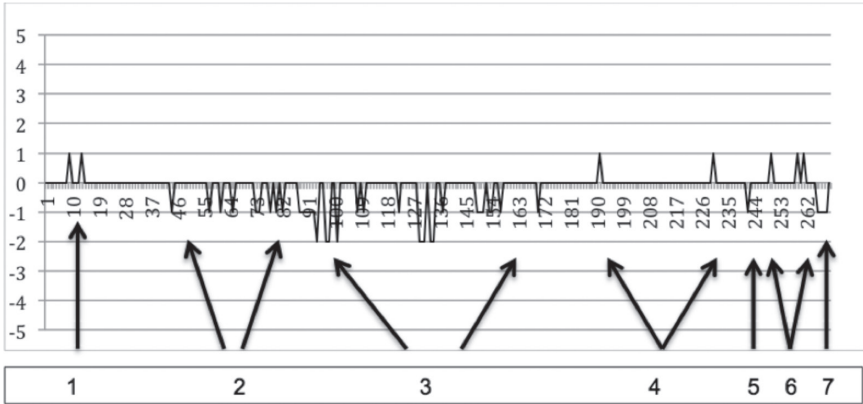


Figure 4.8 Bea's (HAP) idiodynamic self-ratings of FLA during a speaking task

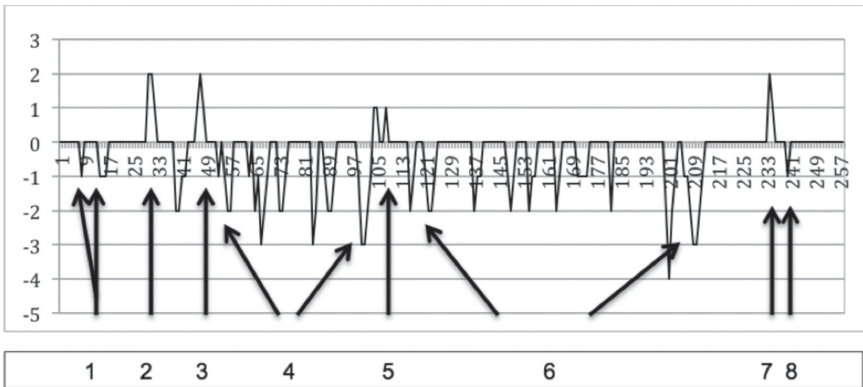


Figure 4.9 Melania's (LAP) idiodynamic self-ratings of FLA during a speaking task

In chronological order of occurrence, the events that caused changes in Bea's self-ratings of FLA are:

- 1 Bea's partner expresses non-familiarity with the course activity (ratings +1).
- 2 Bea's partner understands the instructions of the activity (ratings -1).
- 3 Bea and her partner carry out the activity without any problems (ratings -2; -1).
- 4 Bea and her partner find the activity to be complex (ratings +1).
- 5 Bea has an idea to complete the activity (ratings -1).
- 6 Bea experiences a word retrieval problem (ratings +1).
- 7 Bea and her speaking partner fulfill the activity with success (ratings -1).

In chronological order of occurrence, the events that caused the changes in Melania's self-ratings of FLA are:

- 1 Melania feels comfortable because the main researcher is nearby to help if necessary (ratings -1).
- 2 Melania experiences a grammar structure retrieval problem (rating +2).
- 3 Melania experiences a word retrieval problem (rating +2).
- 4 Melania and her partner carry out the activity without any problems (ratings -1; -2; -3).
- 5 Melania experiences word retrieval problems (ratings +1).
- 6 Melania and her partner carry out the activity without any problems (ratings -1; -2; -3; -4).
- 7 Melania experiences a grammar structure retrieval problem (ratings +2).
- 8 Melania is able to retrieve the right word to express herself properly (ratings -1).

Discussion

As Dewaele (2011, p. 25) claims, “teachers know that boredom and anxiety are the main culprits for lack of progress in FL learning”. The present study explored one of these *culprits*, FLA, in an online speaking interaction environment. More specifically, we aimed to investigate why and how FL learners experience FLA when undertaking videoconference learner–learner speaking activities online.

RQ1: Why do FL learners experience FLA while participating in online speaking interaction activities in pairs?

The quantitative Anxometer data revealed a clear tendency of HAPs to experience more FLA than LAPs while taking part in the *SpeakMOOC* activities. This data was complemented with the information from 8 semi-structured interviews and idiodynamic data collected from 2 participants. In the interviews, HAPs still showed a tendency to experience more FLA than LAPs: all HAPs, except one, mentioned strikingly more causes of FLA than the LAPs. Concerning the idiodynamic data gathered from two participants, both the HAP and LAP spent the same amount of time in the high anxiety zone, although the LAP spent more seconds in the low anxiety zone. These results suggest that the HAPs in our study presented an innate tendency to experience more FLA than their counterparts, which could be considered as a learner-internal source of FLA.

As regards learner-external sources of FLA, most of the FLA causes mentioned in the semi-structured interviews were related to the speaking partner. These involved not knowing the speaking partner before carrying out the speaking activity and having a different level of FL proficiency. Concerning the course activities, the non-familiarity with the activities was mentioned by half of the interviewees as an anxiety-triggering element, being the most reported source

of FLA. Also, speaking in an FL itself was a source of FLA mentioned by two participants, although they reported that this cause of anxiety faded away during *SpeakMOOC* speaking practice. The use of technology was indicated as a source of FLA by only two participants, who felt nervous while the connection with their partner was being established. Once the videoconference activity started, their anxiety vanished. Also, moments of poor audio quality made one participant experience FLA.

To finish with, the anxiety-triggering elements mentioned by the two participants in the idiodynamic study were much more concise and detailed. In this case, the sources of FLA were related to their own level of FL proficiency (vocabulary and grammar structure retrieval problems), the speaking partner (partners' non-familiarity with the activity) and the course activities (complexity of the activity).

RQ2: How does FLA change over time during an online speaking interaction activity in pairs?

Semi-structured interviews with 8 participants showed that learners' perception of their FLA decreased over time. Almost all reported that they had felt nervous during the first speaking activity than during the following ones. Such findings were reported by El-Hariri (2016) in her study of FLA in an English-German e-tandem environment.

Concerning the idiodynamic data collected from two participants, moment-to-moment FLA self-ratings showed that FLA is a dynamic variable with constant change, nonlinear and unpredictable. Lastly, interviews with the subjects of the idiodynamic study provided further evidence for the claim that each individual and each communicative event are unique (Gregersen et al., 2014).

Conclusion

The main sources of FLA found in this study were related to the speaking partner (different level of FL proficiency; not knowing the partner) and the activities of the course (non-familiarity with the activities; speaking in an unfamiliar topic). As to the online learning environment, it was the less mentioned source of FLA (use of technology; poor audio quality).

It is worth highlighting that more anxiety-reducing sources of FLA were identified as opposed to anxiety-triggering ones. These were related, as to the speaking partner (same level of FL proficiency; partner NNS context; TL; knowing the partner; feedback from the partner) and the activities of the course (familiarity with the activities; speaking topic; non-assessment activities; the activities).

Finally, the results capture the idiosyncrasy and dynamicity of FLA: it tends to vanish with practice, but has an unpredictable and changing nature that is unique for each student.

Implications for research

The results from this study provide valuable insight into the topic of FLA in SCMC speaking interaction. We believe that future studies with a similar research context would gain from a focus not only on learners' negative emotional states such as FLA but also on the positive ones. For instance, other scholars recently started to focus on the simultaneous study of one FL learners' negative emotion (FLA) and a positive one (FLE) in traditional classroom environments (Dewaele, MacIntyre, Boudreau & Dewaele, 2016; Dewaele & Dewaele, 2017; Boudreau et al., 2018).

As to the research design, triangulation of different sets of data showed that, when studying an emotion such as FLA, dynamic approaches allow us to better understand its behavior and the reasons of its fluctuations. Quantitative measures are useful as a starting point (Gregersen et al., 2014), but will not always allow us to detect the origin of the *butterfly effect* that leads a learner to experience an unexpected rush of FLA.

Although this study provided us with an enormous amount of information on learners' FLA, it is difficult to make generalizations from the Anxometer data, due to the low number of participants in the first data set. In contrast, the semi-structured interviews with 8 participants (4 HAPs and 4 LAPs) and the idiodynamic data from one HAP and one LAP provided information that allowed for a better understanding of the sources of FLA and its fluctuations during an online SCMC speaking task.

It must be taken into account that, when studying FLA, the research context and learners' sociodemographic characteristics have an unavoidable impact on the findings (Dewaele, 2002), so that similar studies carried out with different groups of learners might yield different results. Also, the collection of participants' physiological data, such as their heart rate variability while completing the speaking tasks, could have provided us with more reliable information on their FLA fluctuations, as previous studies did (e.g., Gregersen et al., 2014).

Since speaking interaction in an FL has a vast potential to foster FL learning (Appel et al., 2014) and FLA has a great impact on each individual's learning experience (Gkonou, Daubney & Dewaele, 2017), we believe that more studies on FLA in SCMC speaking environments are needed. For instance, future research in the broader project this study belongs to will focus on learners' FLA in native speaker–NNS online speaking interaction in an open education environment.

Pedagogical implications

Pedagogical implications that can be derived from the results of this study are, first, that teachers should be aware that some learners have an innate tendency to experience FLA while carrying out speaking activities. Although this learner-internal variable is beyond teachers' control, support mechanisms for these students could be set in place. Also, it is worth mentioning that FLA decreases

with time and experience, so as to not discourage educators from setting up this type of pedagogical practice in their teaching.

Second, when designing a series of speaking activities in pairs, the speaking partner should be considered. The results in this study point out the importance of the following criteria for pairing students: from one side, one should take into account learners' FL proficiency. In some cases the logistics of establishing speaking dyads when strictly following this criterion can be complex. An alternative strategy to alleviate the FLA caused by an FL-level mismatch could be to make students aware of the fact that having a partner with a different level of FL proficiency is no detriment to the benefits of speaking practice. On the other side, learners' familiarity with their speaking partners should also be taken into consideration when designing online speaking activities. In those cases where students do not know each other, it would be advisable to prepare APMC activities with the speaking partners before starting the speaking activities.

Finally, familiarity with the course activities should be taken into consideration as well. In this case, for instance, a *course tour* before the start would benefit the students. Regarding the design of the speaking activities, always adopting a similar task design might improve learners' comfortableness and familiarity with the activities. Moreover, we suggest that selecting topics to the students' liking or of their own choice, thereby avoiding sensitive ones, might make learners feel more confident and engaged with the course.

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