ANXIETY IN INTERACTION-DRIVEN L2 LEARNING

By

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ABSTRACT

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Interaction-based research has been central to understanding how a second language (L2) develops over time through interaction (Mackey, Abbuhl & Gass, 2012). To date, SLA research has shown what some of the most favorable interactional conditions are for L2 learners to notice feedback and learn from it. However, given the same conditions, some learners are better than others at learning through interaction, as L2 development is mediated by learner-internal factors (e.g., affect) and external social factors. Affective factors in SLA have been investigated mostly as traits, and research on their state-dimension has been scant.

With the current study, I further interaction research by investigating the in-the-moment development of foreign language anxiety during four task-based interactions and the possible impact anxiety has on interaction-driven learning. Twenty-one English learners of Italian were video-recorded as they carried out a spot-the-difference and a picture-story task, with both a native and a nonnative speaker of Italian. They subsequently watched the videos of their interactions and rated how their level of anxiety fluctuated during the interactions (idiodynamic rating, MacIntyre, 2012). Stimulated interviews based on the videos and the graphs of the dynamic rating provided insights into the reasons behind the fluctuations. Participants' learning outcomes were measured through fluency and accuracy gain scores, and increased number of attempts in using two target structures (gender agreement and past tense) in oral pre-posttests. Findings show that L2 learning is a situated process, in which learner-internal and contextual factors interact in a complex and non-linear relationship. What differed between high, medium,

and low anxiety learners was the frequency and intensity of the anxiety-inducing situations they experienced, which were in turn determined by learners' assessment of their performance compared to the contextual challenges (e.g., task complexity and interlocutor variables) and their language learning beliefs. Participants' significant improvement and increase in the number of attempts to use the target structures indicate that practicing and receiving feedback contributed to learning, and the high, medium, or low anxiety participants experienced was not significantly associated with their gain scores. These findings unveil the triggering role of learners' expectations and beliefs in inducing anxiety during interaction, and also that abundant, personalized, and non-threatening feedback may counterbalance the cognitive interference of anxiety in interaction-driven learning.

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CHAPTER 1: INTRODUCTION

1.1 Purpose and rationale of the study

The rise and fall of a variety of emotions when using a foreign language (FL) in and outside the classroom setting is a common experience for FL learners. A large body of interaction research has been focused on how interaction fosters second language (L2) learning. Researchers have conducted such studies by looking at cognitive processes, individual differences, and the role of input, feedback, and output in different interactional contexts. However, the affective dimension of interaction-driven L2 learning has not yet been delved into. Further, prevalent assumptions in mainstream second language acquisition (SLA) had been for emotions to be individualistic, cognitive, dichotomous and product-oriented (Imai, 2010), while a wider perspective which encompasses both quantitative and qualitative methods is necessary to take into consideration the interpersonal-communicative and non–linear nature of emotions (Imai, 2010; Julkunen, 2001; McGroarty, 2001).

As the field of SLA has opened a dialogue to bridge the cognitive-social gap (Hulstijn et al., 2014), the interaction approach has been re-envisioned (Mackey, 2012) and researchers are taking a more 'cyclical view' which encompasses a descriptive-correlational-experimental loop (Hulstijn et al., 2014). This new comprehensive approach does not only reconcile the quantitative – qualitative divide, but it does open the way to new methodologies for inquiry and to "research partnerships of paradigms" (Hulstijn et al., 2014, p. 383). As described by MacIntyre and Serroul (2014), "if prior research has taken snapshots" of the effects of a variable in order to examine its relationships with other variables, new methods (such as idiodynamic methodology, a per-second self-rating of variables' fluctuation) are "more like studying a series of short films" (p. 109). Looking at how affective variables in their moment-by-moment co-constructed development

interact with persons and situations in task-based interactions is like "putting a metaphorical microscope on the variable(s) under study" (MacIntyre, 2012, p. 362). Only by looking at these processes as they unfold is it possible to describe and account for fluctuations and interrelationships.

Foreign language anxiety (FLA) is one of the most researched affective factors in SLA as it is a common experience for learners, teachers, and L2 speakers. It seems to affect learners' achievements, their approach to language learning, and expectations for success or failure (Horwitz, 2001). However, most research considered anxiety as a personality trait and overlooked the process by which FLA develops in L2 learning activities and affects them. This project furthers interaction research by empirically investigating the connection between state anxiety (i.e., the in-the -moment reaction to a stimulus) with cognitive processing during interactions. The novelty of this study consists in applying a new method to interaction research, idiodynamic rating, which allows researchers to collect data of the interactants' emotional fluctuations during interaction in real time. This is something not previously possible in interaction research. The triangulation of data from questionnaires, language tasks, real time ratings of anxiety, and stimulated interview aims to provide a comprehensive description of how the emergence and development of FLA can impact how learners notice feedback and learn from L2 interactions. The purpose of the current study is then twofold: 1) to observe the development of learners' state anxiety during four L2 task-based interactions, and 2) to observe its effects on their interaction-driven L2 learning process.

1.2 Overview

This dissertation is organized as follows. In chapter two, I explain the theoretical background of the current study and I review the main findings in interaction and FLA research.

In chapter three, I introduce the research questions and provide details on the method I used to investigate those questions. The findings of the quantitative and qualitative analyses are reported in chapter four and are discussed in chapter five. The conclusions are in chapter six, followed by pedagogical and research implications, limitations and suggestions for future research.

CHAPTER 2: REVIEW OF THE LITERATURE

In this chapter, I review several strands of research motivating the current study. First, I discuss the facilitating contribution of L2 interaction to L2 learning, by looking at the role of negotiations for meaning, corrective feedback, and contextual factors such as interlocutor variables, task complexity, and measurements of learning. Next, I introduce the concept of affect and its role in cognitive processes and learning. This is followed by a critical review of research on foreign language anxiety and the methods used to investigate this multi-dimensional construct. I conclude by explaining how interaction research can benefit from the investigation of the role of state anxiety by means of the idiodynamic method.

2.1 Interaction approach to language learning

As Mackey (2012) and Mackey, Abbhul, and Gass (2012) made clear, almost 40 years of interaction research have shown that input (Krashen, 1985), interactional feedback (Gass, 1997, Long, 1996, Pica, 1994), and pushed or modified output (Swain, 1995) are associated with L2 development. As noted by Gass (2003), the starting point of interaction research is the assumption that "language learning is a stimulated by communicative pressure" (p. 224), and the mediating mechanisms (such as feedback, noticing, and attention) that intervene to forster acquisition are the focus of interest. Many empirical studies investigated how these constructs facilitate L2 development. Early research emphazied the role of input (Krashen, 1985), showing that modified input (i.e., input made more comprehensible for learners) proved to enhance comprehension (e.g., Gass & Varonis, 1985). Input can be made more comprehesible by means of adjustments such as simplifications or elaborations that provide the learners with more details. Input provides positive evidence to the learner of what is possible in the target language (TL).

However, it is not only through positive evidence but mostly through negative evidence provided during breakdowns in conversational interaction that L2 development takes place by means of negotiation for meaning and other forms of feedback (Gass, 1997). The three Cs, comprehension checks, clarification requests, and confirmation checks, have been identified as the three most frequent negotiation strategies that may result in noticing mismatches between the input and the learners' interlanguage (Gass, 1997). Interlocutors' reactions to learners' utterances can provide feedback that has been categorized as input-providing or output-promoting (Ellis, 2008). Recasts are one of the most common input-providing type of feedback (Loewen, 2012). They are the targetlike reformulation of a learner's non-targetlike utterance (Long, 1996). Unlike other types of corrective feedback (e.g., metalinguistic feedback), recasts do not disrupt the flow of the interaction (Loewen & Nabei, 2007). When corrective feedback, like recasts, is contingent on learners' errors, learners at the right developmental level can notice and compare their erroneous utterances with their interlocutor's correctly reformulated ones. In negotiation episodes, by means of feedback, linguistic information is enhanced and can become more salient. Learners can thus 'notice the gap' (Schmidt & Frota, 1986) and become aware of inconguencies in their interlanguage system or of features of language completely new to them. Moreover, negotiation of meaning aims to *push* learners to modify their original output to be more targetlike. This process helps learners to test hypothesis about the L2, reflect on and correct incongruencies in their interlanguage, as well as develop fluency and automaticity (Swain, 1995).

2.1.1 Negotiation for meaning and corrective feedback

Although corrective feedback has been widely researched in SLA, the identification of the different types of feedback is far from being straightfoward and problems in coding

consistency have been brought to researchers' attention (e.g., Foster & Snyder Ohta, 2005; Hauser, 2005). Rigorous definitions of the constructs as well as a careful consideration of the context and the pragmatic meaning of the interactional moves are therefore fundamental for consistency in coding (Foster & Snyder Ohta, 2005).

In the current study, negotiations for meaning and corrective feedback were coded according to their pragmatic intentions. While the main goal of negotiations for meaning is to understand the information to carry out the conversation or task successfully, corrective feedback also provides positive and negative evidence to the learner, and therefore promote noticing possible linguistic shortcomings while providing also a model of the correct form. Pica (1987) describes negotiations for meaning as interactional moves by which the interactants work linguistically to solve an impasse in the conversation. In the same vein, Gass (2013) explained that in negotiations for meaning participants interrupt the flow of the conversation to "negotiate what was not understood" (p. 349). In the current study, clarification requests, confirmation checks, and comprehension checks, the most common negotiation moves, are operationalized following Long's (1983) definitions (the examples are taken from the data collected for the current study). As clarification requests have the aim to "elicit clarification of the interlocutors' preceding utterence(s)" (Long, 1983, p. 137), exchanges were coded as such when the interactant showed non-understanding and asked for additional information to make the meaning clear. In example 1 the native speaker interlocutor asked for clarification about what object the learner (J.) identified as blue. The question shows that something in the learner's utterance was not targetlike and the communication was not successful.

Example 1: Clarification request.

J: *All'ora* [looking at the clock] [At the hours.

È azzurro	It's blue.]
NS: Che cosa è azzurro?	[What's blue?]
J: Non lo so la parolama quando	[I don't know the wordbut when
io vedo ilall' ora	I look atat the hours]
NS: Ah, l'ora! Ok, quindi l'orologio!	[Ah! The hours! Ok, then the clock!]
J: Sì, sì.	[Yes, yes]

Confirmation checks are moves "designed to elicit confirmation that the utterance has been correctly heard or understood" (Long, 1983, p. 137). In example 2, the native speaker intelocutor understood what the learner was trying to say in the non-targetlike utterance and asks for confirmation of the correct interpretation of the information, by providing the learner with positive and negative evidence at the same time.

Example 2: Confirmation check.

J: Sì. Io c'ho tu ti sedi o ilti sedi	[Yes, I haveyou sit or theyou sit yourself]
NS: Mi sono seduto?	[I sat down?]
J: Sì	[Yes]

Comprehension checks are moves "to anticipate and prevent a breakdown in communication" (Long, 1983, p. 137). In example 3, the learner (A.) checks whether her utterance was understood by ending her statement with a comprehension question.

Example 3: Comprehension check.

NNS: Allora cosa è che è successo	[So, what happened
dopo mi sono svegliato?	after I woke up?
L'ho vista e poi cosa?	I saw her, and then what?]

A: *E poi*... *baciato*, *si*? [And then....kissed, yes?]

On the contrary, corrective feedback has the pragmatic function to signal the interlocutor that something he/she said was not targetlike. Corrective feedback generally occurs in instructional settings and usually focuses on form (grammar, pronunciation, lexis) rather than meaning (the content discussed). Loewen (2012) suggests that explicitness should be viewed as a continuum rather than a dichotomy, and corrective feedback can differ on the degree of explicitness. Recasts can be defined as a speaker's reformulations of "all or part of a learner's utterance, thus providing relevant morphosyntactic information that was obligatory but was missing or wrongly supplied, in the learner's rendition, while retaining the central meaning" (Long, Inagaki, & Ortega, 1998, p. 358). In other words, recasts are the targetlike refomulations of something that was previously formulated in a non-targetlike way (Long, 1996; Mackey, 1999; Mackey & Philp, 1998). Their aim is to provide negative evidence that, although implicit, may become more salient when juxtapposed to the learner's non-targetlike utterance. Leeman (2003) suggested that if learners do not recognize the negative evidence in the recast, it can still function as positive evidence whose salience is enhanced through the juxtaposition. In this study, the native and nonnative speaker interlocutors made use particularly of recasts (Example 4), an implicit and less face-threatening form of corrective feedback, however, some instances of explicit corrective feedback also occurred (Example 5).

Example 4: Recast.

H: La miano il mio fiore?	[My FemSingno my MascSing flower (masculine)?]
NNS: <i>Sì</i> .	[Yes]
H: E' uhgialla	[It's uhyellow FemSing]
NNS: E' giallo	[It's yellow MascSing]

H: Giallo

[Yellow MascSing]

Example 5: Explicit corrective feedback.

M: Uno: si sveglia ma non sveglia	[One: you wake up, but not wake up]
NS: Allora devi dire 'ti sei svegliato'.	[So you should say 'you woke up']
M: Ti sei svegliato.	[You woke up.]

2.1.2 Uptake

Lyster and Ranta (1997) defined uptake as "a student's utterance that immediately follows the teacher's feedback and that constitutes a reaction in some way to the teacher's intention to draw attention to some aspects of the student's initial utterance." (p. 49). In the current study, uptake is defined generally as the participant's response to corrective feedback, and is coded as accurate when participants correctly repeated the target of the corrective feedback (see examples 4 and 5), and inaccurate when the reformulation was still non-targetlike. Uptakes have been considered a possible indication that feedback has been noticed, and a possible facilitator of learning. However, Loewen (2005) showed that it is not merely the presence or absence of uptake that is important, because, in his study, "uptake that was incorrect or still in need of repair was apparently not helpful. Learners needed to actually produce the correct linguistic items for there to be an improvement in test scores." (p. 383). Because it cannot be assumed that the learner did or did not understand the intention of the corrective feedback in absence of uptake or with the simple acknowledgment of the feedback, in the current study no code of accurate or inaccurate response was assigned when participants did not respond to the feedback and carried on the task by initiating a new turn, or when they only said 'yes' or 'ok' after the feedback. In the latter case, the bare acknowledgment without targetlike repetition of the form corrected, may also mean that the feedback was perceived as another way of saying the

same thing instead of a correction of the utterance, or it may simply acknowledge turn completion.

2.1.3 Factors affecting interaction-driven L2 learning

The impact and efficacy of negotiations on L2 learning during interactions depend on the features of the negotiation (e.g., type of feedback), but also on learner-internal and -external factors. For example, contextual features such as instructional and interlocutor variables have shown to affect the type and amount of negotiations. While interactional patterns in a laboratory were not found significantly different from a classroom context (Gass, Mackey, & Ross-Feldman, 2005), interlocutor variables such as familiarity, gender, nativeness, and proficiency level, proved to have an effect on the provision of type and amount of negotiations and feedback.

Plough and Gass (1993), for example, investigated a possible familiarity effect, and found that unacquainted interactants were more involved in avoiding potential breakdowns, which seemed more face-threatening with unfamiliar interlocutors. However, as breakdowns often require negotiations for meaning, which facilitate the acquisition process, the researhers concluded that familiarity between nonnative speakers may benefit learners, as it fosters their participation in negotiations for meaning.

As for the effect of interlocutor's gender on L2 interactions, in Gass and Varonis's (1986) study there was more negotiation in mixed-gender dyads than in same-gender dyads. Moreover, male participants negotiated more than female, and in mixed-gender dyads the male participant generally talked more and had a more dominant role, while in same-gender dyads the amount of talk was more evenly distributed. In the same vein, Ross-Feldman (2006) found that participants were more likely to recasts same-gender interlocutors, unveiling the possibility that the gender composition of the dyads may influence the learning opportunities afforded to the

interactants. Findings on gender effect on L2 interaction are not conclusive, also because "the construction of gender takes different forms across cultures and throught time [...] and gender may be produced differently by individuals in a single society or community" (Carmeron, 2003, p.188). The ethnic and cultural background of the male and female interactants can therefore affect the role and level of involvement in the interaction.

Research on the effect of nativeness, found that there were more interactional features and types of negotiations in nonnative speaker (NNS) -NNS interactions than native speaker (NS)-NNS interactions (Gass & Varonis, 1994; Pica et al., 1996; Polio & Gass, 1998; Varonis & Gass, 1985). On the other hand, Mackey, Oliver, and Leeman (2003) found a disparity in amount and nature of feedback, with NS interlocutors providing more feedback, but NNSs providing more opportunities for modifed output. The researchers took into consideration only negatiations that provided negative evidence (signaling non-targetlike utterances), while previous studies that found more negotiations in NNS-NNS dyads might have included also negotiations due to participants' non-understanding of a targetlike form. Moreover, the higher opportunities for modifed output afforded by NNSs could be due to the fact that the NNSs did not know the target form themselves and had to rely on the interlocutors to reformulate their utterance. In this case interlocutor's proficiency seemed therefore to have affected the quantity and quality of the negotiations.

Researchers agree that it is beneficial for learners to intract with more advanced interlocutors, as the collaborative interactions with learners from different proficiency levels provide more input (Porter 1986) and more language related episodes (Kim & McDonough, 2008). Kim and McDonough also found that participants showed different pair dynamics when collaborating with interlocutors from different proficiency levels, with participants shifting from

a dominant to a collaborative role, or from a collaborative to a passive or novice role, when they perceived their linguistic skills were less developed than those of their advanced interlocutor. However, Gregersen (1998), who measured both participatory and affective responses in mixed-proficiency dyads, found that all participants had higher positive affective responses (measured with a questionnaire) and frequency of participation (measured in words, phrases and extended discourse) when they were paired with high proficiency students compared to when they were paired with intermediate and low proficency students.

Taken together, these findings show that more negotiations are generated when learners interact with same-gender NNS interlocutors with higher proficiency. This large body of research has mainly considered learners' external factors, and only few learners' internal factors, such as working memory capacity, have received attention (e.g., Gass, Behney, & Uzum, 2013; Mackey, Adams, Stafford & Winke, 2010; Mackey, Philp, Egi, Fujii, & Tatsumi, 2002). In striving to identify the most favorable conditions that foster learners' negotiation of meaning in interaction, it is thus fundamental for interaction researchers to consider how learners' internal characteristics impact what learners are willing and able to attend to, as well as what they produce in negotiation-generating tasks. It is thus necessary to shed light on the neglected area of the role of affective factors. Given that learners' characteristics interact with task features, the following section describes what features of interactive tasks promote negotiation and how these features relate to learners' affective domain, and to anxiety in particular.

2.1.4 Task-based interaction and task motivation

As tasks influence what and how learners learn, task characteristics are crucial as they affect task motivation to engage in it (Julkunen, 2001). According to the Cognition Hypothesis (Baralt, Gilabert, & Robinson, 2014; Robinson, 2001, 2003, 2005) there is a link between a

task's cognitive demands and learners' processing, L2 production, and L2 development. This Hypothesis suggests a "triadiac componential framework for task classification" (Robinson, Cadierno, & Shirai, 2009, p. 535) which encompasses *cognitive*, *interactive*, and *learner factors*.

Regarding *cognitive* demands, Robinson (2001, 2005) argued that increasing resourcedirecting variables (e.g., reasoning skills, number of elements, and events displaced in time and space) can direct learners' attention to task-relevant linguistic resources. Empirical studies (e.g., Baralt, 2013; Kim, 2009, 2012; Révész, 2011; Robinson 2001, 2007; Nuevo, 2006) indicated that higher task complexity (i.e., higher amount of information and reasoning) generated more language breakdowns and, as a consequence, more interactional moves.

To ensure the maximum level of interaction and negotiation of meaning, task complexity can also be 'proactively manipulated' (Robinson, 2001) in terms of a combination of *interactional factors* (Pica, Kanagy, & Falodun, 1993) such as: 1) flow of information (one-way/ two-way); 2) information distribution (split/ shared); 3) convergence/ divergence of goals; 4) limited/ unlimited solutions. Pica et al., (1993) suggested that a task promotes the greatest opportunities for input, feedback, and modified output when each interactant holds a different portion of information, and is required to request or supply this information to reach the same convergent goal.

Finally, in terms of *learner factors* (abilities required), task difficulty can vary according to learners' proficiency level, aptitude, working memory, and affective factors (e.g., anxiety and motivation). Robinson (2005) clearly suggested that learner factors affect learners' perception of the cognitive demands of tasks and their involvement in task performance. However, little attention has been given to explore their impact. A few examples are Kim, Payant, and Pearson's (2015) and Kim and Tracy-Ventura's (2005) studies. In Kim, Payant, and Pearson's (2015)

study, findings showed that WM may mediate the role of task complexity, as learners with higher WM carrying out the more complex tasks had a higher degree of question development (the target structure) than learners with lower WM. Considering the role of affective factors, Kim and Tracy-Ventura (2005) investigated the relationship between task complexity, languague anxiety, and the development of the simple past. Their findings show that regardless of anxiety level, task complexity played a major role in the development of the morphology of the target structure, and that there was no interaction between task complexity and language anxiety. Although overall low anxiety learners performed better than high anxiety learners, in the most complex task condition high and low anxiety learners performed similary. These findings are not in line with Eysenck's (1979) psychological conceptualization of anxiety as a 'cogntive interference' which affects learners' processing with complex tasks. As suggested by Kim, Payant, and Pearson (2015), the interaction effects between learner factors and task complexity needs to be furter explored.

Seegers and Boekaerts (1993) argued that task motivation depends on both learners' general motivation and learners' individual appraisal of the task. Recent studies (e.g., Dörnyei & Tseng, 2009; Poupore, 2013) addressed the issue of the affective domain in interactive tasks. In particular, Dörnyei and Tseng (2009) highlighted the link between motivational task appraisals and noticing capacity, concluding that learners who cannot appropriately appraise their ongoing task execution process may not benefit from interaction. In this perspective, the way learners perceive the task (utility, difficulty, enjoyment) and evaluate their performance (e.g., success or failure attributed to luck or effort) is known as appraisal. Appraisals related to task difficulty (i.e. to the ablities required to do the task) are influenced by the other task-related factors (cognitive and contextual). In other words, learners' motivation during different types of tasks is a complex

system which varies according to the interplay of socio-affective and task-related factors. For example, in Puopore's (2013) study a combination of socio-affective variables (e.g., task motivation and emotional state), cognitive complexity, and topic impacted learners' motivational patterns. It is clear that different task types objectively afford different opportunites for learners to negotiate meanings and forms, and some task features (e.g., increased resource directing variables and two-way interactional flow) increase interactional moves and arguably foster L2 learning. However, the effectiveness of these features is contingent on their interplay with learners' affective variables. Before turning to the role of affective factors in task-based interaction and on learning, I discuss measurements of interaction-driven learning.

2.1.5 Measuring interaction-driven L2 learning

To examine whether L2 interaction was conducive to learning, researchers either looked at learners' production of uptakes, or adopted pretest – treatment - posttest designs, which usually operationalized learning in terms of increased accuracy or progress in the acquisition sequences. As noted, the interpretation of uptake is problematic, as learners' repetition or acknowledgement of the corrective feedback received, or the absence of uptake cannot be interpreted with confidence as his/her understanding of the target of the feedback or lack thereof. Only through introspective measures such as stimulated recall protocols (Mackey & Gass, 2000) can learners' real understanding of feedback be unveiled. Moreover, learners may have not produced any uptake because there was no opportunity in the turn to do so, or because they did not find it necessary. This is the case in a comment provided by one participant in the current study, who said: "I realized often when I used the wrong gender you and [the NNS] would repeat it correctly. I didn't repeat, but I did notice. For the sake of not repeating the same words over and over."(Participant # 7, stimulated interview, NNS spot-the-difference task). This supports

Mackey and Philp's (1998) findings, that "the immediate response of the learners to recasts may not be a predictor of whether that learner will subsequently make use of the recast." (p. 352) and therefore of noticing and learning.

Production tests eliciting the forms targeted for corrective feedback are a common method to measure interaction-driven learning. In particular, oral production tasks with the same design as the treatment task (e.g., information gap or picture description) have often been adopted (e.g., Loewen & Nabei, 2007; Long at al., 1998) and scored according to the percentage of accurate use of the target structures. This is consistent with task-based learning findings (e.g., Foster & Skehan, 1996; Skehan & Foster 1997; 1999) which showed the relationship between task characteristics and performance. Structured tasks with a clear time line or macrostructure, and familiar information were found to result in greater fluency and accuracy, while tasks requiring justifications to lead to greater complexity (Skehan, 2003). According to Skehan (2003) the complexity-accuracy-fluency sequence is theoretically justified as it reflects the three developmental changes in the underlying system. Task characteristics and conditions contribute to develop a more complex interlanguage system (complexity), a greater control over the emerging system (accuracy and reduction in errors), and performance control (fluency) (Skehan, 1998). Based on the characteristics of the oral tasks used in the current study (i.e., clear timeline and familiar information), measuring accuracy and fluency of learners' performance seems to be substantiated. In the following sections, I introduce accuracy and fluency of oral productions as measurements of learning and I review some target structures that have frequently been targeted in interaction studies.

2.1.5.1 Accuracy

As mentioned, accuracy can be regarded as a sign of greater control on the emerging system, "as new interlanguage elements are used not simply haltingly and incorrectly, but instead with some reduction in error" (Skehan, 2003, p. 8). It can be defined as "the correct use of the target structures" (Gass, 2013, p. 520), and also "the degree of comformity to certain norms" (Pallotti, 2009, p. 592). Deviations from the norm are usually characterized as errors. Previous interaction research operationalized accuracy in general as error-free clauses (e.g., Sato & Lyster, 2012), or in accordance with Ellis and Barkhuizen's (2005) 'obligatory occasion analysis', as the ratio of the accurate use of the target structure to obligatory contexts (e.g., Leeman, 2003, Gass, Behney, & Uzum, 2013; Van de Guchte et al., 2015).

However, oral production does not ensure that participants will use the target structures, as they may produce error-free utterances by avoiding their use. In this regard, Ellis (2009), citing Skehan and Foster (1999), provided a definition of accuracy as "the ability to avoid error in performance, possibly reflecting higher levels of control in the language, as well as a conservative orientation, that is, avoidance of challenging structures that might provoke error" (Ellis, 2009, p. 475). In other words, an accurate (error-free) L2 performance can be one in which the learner does not take risks and avoid using the structures he/she is not comfortable or familiar with. For this reason, accuracy measures alone might not provide a complete picture of the learning process involved in the interaction. For example, participants in the current study may not have made errors in noun-adjective agreement in the pretest, because they may have avoided using adjectives. As L2 learning is a process which involves a series of hypothesis formation, testing, rejection, modification, and confirmation (Gass, 1988) before the input can become intake and be integrated in the learners' underlying system, interaction might not

promote learning by directly increasing accuracy *per se*, but rather by fostering learners' use of the target structure as a consequence of negotiations for meaning and modified input. Thus, as the positive impact of L2 interactions on learning might not be reflected in an increased accuracy in the target structure after only a few experimental interactions, together with accuracy other measures of learning progress such as learners' increased number of attempts to use the target structures in the posttest and fluency can be used.

2.1.5.2 Fluency

Fluency, as a measure of performance, highlights learners' perfomance control "as [interlanguage] elements are routinized and lexicalized" (Skehan, 2003, p. 8). Fluency is the ability to use language in real time and is characterized by the "temporal aspects of oral production that influence the degree of fluidity in speech (e.g., pauses, hesitation phenomena, speech rate)." (Derwing, Munro, Thomson & Rossiter, 2009, p. 534). Fluency can be evaluated by means of raters (e.g., Van de Guchte et al., 2015) or through more objective measures such as speech rate. Speech rate is a temporal measure of oral fluency which is considered to manifest underlying cognitive processing (Segalowitz, 2010). Speech rate, the measure employed in this study, was calculated on the basis of meaningful (pruned) syllables per minute. Accordig to Lennon (1990) pruning speech samples gives a more reliable score for fluency. To obtain pruned syllables, all dysfluencies, such as self-corrections, self-repetitions, false starts, non-lexical filled pauses, and asides in English were removed. The number of meaningful syllables was divided by the total number of seconds, and multiplied by 60.

2.1.5.3 Target structures

Several factors contribute for interaction to foster the learning process. As noted, contextual factors such as interlocutor variables and task type may affect the opportunities afforded to learners to use and negotiate the language, and to receive feedback. Arguably learners should be developmentally ready, in order to "notice the gap" in their production by comparing their non-targetlike utterance with the feedback received. Finally, the effectiveness of feedback is also contingent on the linguistic items targeted. Research show that in classroom settings for example, grammar, vocabulary, and pronunciation are the most common targets of corrective feedback (e.g., Ellis, Basturkmen, & Loewen, 2001). However, several studies found that learners notice more feedback targeting lexical and phonological errors than feedback targeting morphological and syntactic errors (Gass & Lewis, 2007; Mackey, Gass, & McDonough, 2000; Trofimovitch, Ammar, & Gatbonton, 2007). Nevertheless, Egi (2007) found that when in an experimental situation morphosyntactic recasts were more frequent and consistent than in the classroom setting, there was no difference in learners' noticing morphosyntactic and lexical feedback.

Taken together these studies show that for learners to benefit from interactions it is important to adopt tasks that elicit the use of target structures within the learners' developmental stages. Further, feedback should be frequent and focused on a limited number of structures for them to become salient.

2.1.5.3.1 Gender agreement

Several studies on corrective feedback focused on English question formation and English past tense, and only few studies have used languages other than English (Loewen, 2012). Among these, a few studies investigated the facilitative role of feedback in the acquisition of gender marking in articles and nouns in French (Lyster, 2004; Lyster & Izquierdo, 2009), and noun adjective agreement in Spanish (Leeman, 2003; Sagarra, 2007). Even though the focus was on the effectiveness of different aspects of corrective feedback, the researchers targeted grammatical gender in romance languages (e.g., French and Spanish) because of the possible pedagogical relevance of the results. In languages with grammatical gender nouns with no natural gender have a gender (masculine or feminine) assigned to them. This is an area of difficulty for L1 English learners of romance languages because grammatical gender does not exist in English (Lyster & Izquierdo, 2009). Carroll (1989) suggested that the problem is representational, as learners whose L1 does not have grammatical gender would process the noun and the determiner as separate syntactic units, while in the native speakers' mental representation they would be co-indexed chunks. Leeman (2003) also noticed that although gender agreement in romance languages is very frequent in the input, it is not salient, has limited communicative value (in case of inanimate objects), and is therefore rarely targeted for corrections in communicative situations. For these reasons, gender agreement seems a suitable target structure to investigate interaction-driven learning, especially because of learners' difficulty in acquiring it, in spite of their early and high exposure to the structure.

Grammatical gender in Italian is generally marked with transparent morpho-phonological cues at the end of a noun, which determine morphosyntactic agreement with the adjectives that modify them. For example, in Italian most masculine nouns ends in -o, and the adjectives that modify them agree with it, showing the same ending (e.g., *divano giallo* [couch MascSing yellow MascSing]). Similarly, most Italian feminine nouns ends in -a, as do their modifying adjectives (e.g., *finestra gialla* [window FemSing yellow FemSing]). However, these morpho-phonological cues

are not fully reliable, as some anomalies exist. A large number of Italian nouns are morphologically opaque and end in -e. They could be either masculine or feminine, and L2 learners need more contextual cues, such as determiners or agreements, to assign the grammatical gender (e.g., *il bicchiere rosso* [the MascSing glass MascSing red MascSing]; *la chiave rossa* [the FemSing key FemSing red FemSing]). Adjectives that end in -e, such as some colors used in the tasks of the present study (e.g., verde [green], marrone [brown[) show only number agreement but not gender agreement (e.g. divano verde [couch MascSing green MascSing]; poltrona verde [chair FemSing green MascSing; but divani verdi [couches MascPlur green MascPlur]). Finally, a few feminine words have the masculine marking, ending in -o in the singular, and -i in the plural (e.g. mano [hand]; *mani* [hands]), and other singular masculine words take singular feminine marking in the plural (e.g., *labbro* [lip]; *labbra* [lips]). As mentioned, the correct use of gender marking and agreement can be problematic for L2 learners of Italian whose L1s do not have grammatical gender (e.g., English) (Carroll, 1989; McCarthy, 2008). Errors can depend both on problems of gender assignment and gender agreement. Several studies investigated mastery of gender agreement in Romance languages (e.g., Chini, 1995; Oliphant, 1998 for L2 Italian; Dewaele & Véronique, 2001; Grandfeldt, 2005 for L2 French; Franceschina 2005; McCarthy, 2008; Montrul et al., 2008 for L2 Spanish) and showed that gender is a vulnerable area and learners continue making gender errors even at advanced levels.

2.1.5.3.2 Past tense

Similar to gender agreement, *passato prossimo*, the second target structure in the current study, is frequent in the input and L2 learners of Italian are exposed to this past tense as early as in their first semester. Similarly to the present perfect in English, *passato prossimo* describes past events perceived as connected to the present. However, especially in northern Italy, its use has

been extended also to express finished past events unconnected to the present. *Passato prossimo* is a compound tense, which has retained the late Latin distinction between auxiliaries (*esse/habere* realized in Italian with *essere/avere*). This tense combines the present indicative of the auxiliary verb (*have* for transitive and unergative verbs and *be* for unaccusative, verbs, as well as passive and reflexive verbs) followed by the past participle of the verb (e.g., *Sono andato* [I am gone]; *ho mangiato* [I have eaten]). In Sorace' s (1993) study, near-native L1 English speakers of Italian had an incomplete competence of the use of the auxiliary verb *essere* (to be) in the present perfect. The researcher argued that it reflected the lack of syntactic representation of unaccusativity in English. This finding suggests that the choice of the auxiliary verb *essere/avere* in the present perfect in Italian may be problematic for English learners even at high proficiency levels.

After this selective review of findings in interaction-based research, which motivated the choices of target structures, tasks, interlocutors, and measurements of L2 learning for the current study, I now turn to discuss the relevant literature on the role of affective factors, and language anxiety in particular, in L2 learning.

2.2 Affect and language learning

Following Dulay, Burt, and Krashen (1982), Stevick (1999) defines affect toward a situation, or an experience as "how that thing or that action or that situation or that experience fits in with one's needs or purposes, and its resulting effect on one's emotions" (p. 44). This definition includes emotion (the feeling side) along with needs and purposes, and the author argues for the necessity to manage both parts at the same time. Brown (1973) highlighted that to understand the process of SLA the cognitive approach to human learning should be accompanied by the exploration of the affective domain. He suggested that "while all the cognitive factors may

be operating in the attempted solution of a given task, the learner can fail because of an affective block." (p. 231-232). Attention to emotions in L2 learning dates back to Krashen's (1985) theory of an 'affective filter'. In his view, positive emotions would enable lerners to let in more input (resulting in learning), while negative emotions would impair learning, by keeping input out. A growing body of research on affective factors (e.g., Dewaele, 2007, 2010; Dewaele, Petrides, & Furnham, 2008; Dörnyei & Tseng, 2009; Imai, 2010) has shown a more complex picture, in which there is a much less linear relationship between emotions and L2 learning. During an L2 interaction the dynamic ebb and flow of anxiety, willingness to communicate, self-confidence, and even motivation to pursue the interaction are produced by the interaction itself and affect it at the same time by shaping the interlocutors' following moves.

Schumann (1999) investigated the possible neurobiological substrate of affect of language learners, which is based on a stimulus-appraisal system centered in the amygdala and the orbitofrontal cortex. According to Schumann, internal and environmental stimuli are assessed on the basis of novelty, pleasantness, goal significance, self and social image, and coping potential. This affective appraisal seems to be at the core of cognition, as it drives the decisionmaking processes. In a learning situation, the positive or negative assessment of stimuli can draw learners' attention and effort towards or away from learning. This appears to be a key process for learners' moment-by-moment emotional responses, and utlimately for their dynamic movement toward or away from language learning. The following sections discuss how the stimlusappriasal process works and its relationship with language learning.

2.2.1 The emotion process

The word emotion, like the word motivation, derive from the same Latin root, *movere*, which means 'to move'. This suggests that emotions are forces that move us, and cause us to act.

However, definitions of emotion vary greatly and there is no agreement among theorists. Reeve (2009) argued that emotions are multidimensional phenomena and identified four aspects of the emotion process: subjective feelings, physiological reactions, purposive (goal-directed) behavior, and social components. Emotions are then physiological and functional reactions to stimuli and direct the body to an action. They are also subjective and social phenomena, as they result in facial, bodily and vocal expressions that communicate inner emotional experiences to others. These interrelated aspects constitute emotions as a psychological construct.

When we encounter a significant life event, biological and cognitive processes are activated, and generate emotion. According to cognitive emotion theorists (Arnold 1960, 1970, Lazarus, 1982, 1991; Weiner, 1986) appraisal of the event, not the event itself, causes emotion. Arnold (1960, 1970) argued that cognitive perceptions and appraisals happen not only after physiological arousal, but also immediately upon encountering the stimulus. In this perspective, emotion is a felt tendency toward something appraised as good or away from something appraised as bad. Thus, the approach-avoidance tendency makes emotions a directional force. Arnold's general preliminary good-bad appraisal, developed into Lazarus'(1991) framework which encompasses primary and secondary appraisals. A primary appraisal determines the personal relevance of the event for the individual, according to his/her goals and well-being. When what is at stake (benefits, harm, or threat) has been assessed, a secondary appraisal assesses the individual's ability to cope with the possible benefit, harm or threat. In this view, the emotion process is a motivational one, as the individual's personal motives (goals and wellbeing) are the central part of appraisal processes. Weiner's (1986) attributional theory introduced a further step in the process. The positive or negative outcome of the emotion process is evaluated on the basis of its causes (internal/external, controllable/uncontrollable, stable

/unstable). On the basis of these attributional roots, positve outcomes correspond to some emotions (such as internal= pride; external =gratitude, and stable = hope), whereas negative outcomes to others (internal, uncontrollable =shame, internal, controllable= guilt, or stable = helplessness). Weiner's attributional theory allows for an understanding of why individuals experience different emotions in the same situation, and even with the same outcome. These theories also show that the approach-avoidance distinction is integral to an understanding of the emotion process.

Finally, in the attempt to provide a scheme for how affect and cognition interact, Hoffam (1986) argued for three modes of information processing that generate affective resposes to a stimulus: 1) affective respose to a physical stimulus, 2) affective response to an internal representation of the stimulus, and 3) affective response to the meaning of a stimulus. In turn, the affect elicited through any of these modes may influence the subsequent information processing and determine which processing modes operate. This means that "affect may initiate, terminate, accelarate, or disrupt information processing [...] it may organize recall and influence category accessability; it may contribute to the formation of emotionally charged schemata and categories; it may provide input for social cognition; and it may influence decision making." (Hoffman, 1986, p. 246).

In light of the close connection and interaction of emotion and congnition described, and their impact on human behavior, it is important to look into how approach-avoidance motivation works and its role in second langauge learning.

2.2.2 Approach-avoidance motivation in language learning

In educational psychology, motivation has been defined as "the energization (i.e., instigation) and direction of behavior" (Elliot & Covington, 2001, p. 73). As described in the

previous section, emotions function as a motivational system, as they give energy and direction to an individual's behavior. In general, approach motivation energizes or directs behavior toward positive stimuli, wheareas avoidance motivation energizes or directs behavior away from negative stimuli.

The approach- avoidance distinction is a basic assumption of most models of motivation (Cofer & Appley, 1964; Franken, 1994; Reeve, 2009). Gray (1972) theorized that the movements toward or away from stimuli in the environment are operated by two separate underlying neurological systems: The behavior activation system (BAS), which is sensitive to rewards and motivates the individual to seek desirable goals, and the behavior inhibition system (BIS), which is sensitive to punishment and inhibits behaviors leading to negative or painful outcomes. Thus, BIS and BAS are motivational systems that guide our responses to stimuli of reward or punishment. Gray argued that BIS is responsible for the experience of negative feelings, as it assesses risks and facilitate protective behavior by higlighting disadvantages or losses. BAS is oriented toward reward and emphasizes advantages or gains. BAS and BIS have been conceptualized as trait-like orientations (e.g., more BAS/BIS dominant individuals). In this perspective, individual differences in the sensistivity of the two neurological systems can be reflected in general proneness to anxiety when an individual is exposed to cues of punishment, or proneness to engage in goal-directed efforts when exposed to cues of reward.

As observed by Carver (2006), approach-avoidance are "the building blocks that underlie the complexity of human behavior" (p. 105). This complexity is also due to the fact that general dispositions (the trait) interact with on-going appraisal processes activated every time we encounter a stimulus. The two systems (BIS and BAS) operate independently and simultaneously to give us energy and direction to act in real-time interactions with the environment. Attention to

different timescales in which emotions develop and emerge (as traits or states) are particularly relevant when looking at language learning as a process rather than a product.

Like normal conversations, L2 interaction involves moment-by-moment decision making and this ongoing appraisal process sets the foundation of emotional responses to language learning. Despite the inherent dynamic nature of the emotion process, past research on emotional dimensions in L2 learning mainly adopted a trait-oriented approach and failed to see the force and direction of emotional experience in second language events. Gregersen, MacIntyre, and Meza's (2014) description of L2 learners' real-time experience is in line with the cognitive theories of the emotion process (Arnold, 1970; Lazarus 1982; Weiner, 1986) described in the previous section. Gregersen et al. argue that an L2 learning event starts with learners emotional conditions (e.g., feeling excited, bored or anxious). Then learners' internal and external forces interact dynamically and produce a change toward a positive or a negative direction, resulting in a new emotion. Learners' learning experience is thus shaped by what the authors called "feedback loops" (p. 576): learners' affective reactions influence the learning context and its participants, and the learners themselves in turn react to these emotions. As the learning event unfolds, the learner's approach-avoidance appraisal produces a driving or restraining force, which fluctuates and is subject to rapid changes. The motivation to approach or avoid a learning event is modulated by the presence of other emotions produced by the simultaneous activation of BAS and BIS. BIS is considered responsible for the experience of anxiety, a common emotional reaction in language learning experience, which exerts a retraining force.

2.3 Anxiety

Anxiety is one of the basic negative emotions, along with anger, sadness, and disgust, and is characterized by mental and physical syntoms, such as feelings of nervousness, tension,
worries, intrusive thoughts, pounding heart, and perspiration. It entails a cognitive appraisal of potentially threatening or dangerous situations and it is believed to have adaptive functions. Spielberger (1983) advanced the critical distinction between trait and state anxiety, that is between anxiety as a stable personality characteristic and as an in-the-moment reaction. According to Spielberger's trait-state theory, when individuals with their own level of trait anxiety experience a stressful situation the appraisal of the stimulus provokes state anxiety, followed by copying and adaptive outcomes. State anxiety reflects therefore the interaction between trait anxiety and other external factors, and although high trait anxiety individuals might experience more intense state anxiety, the interaction with external factors also allow for different patterns.

Regarding the effects of anxiety, Beck and Emery (1985) coined the term "anxiety paradox", because the same mechanism that should make individuals vigilant about potential threats, can interfere with effective performances and produce inhibited behaviors. In general, research findings in cognitive psychology showed that anxiety has disruptive effects on cognitive processes, because it reduces attentional control by diverting processing resources from taskrelevant to task-irrelevant stimuli. Eysenck (1979) conceptulized anxiety in terms of cognitive interferece, and argued that anxiety impairs the quality of performances because the attention of an anxious individual is divided, as 'cognitive self-concern' (excessive self-evaluation, worry over potential failure, and concern over the opinion of others) competes with task-related cognition in the processing system. Nevertheless, the author also postulates that the impairing effects of anxiety depend on the extent to which anxious individuals are able to increase their efforts to compensate for the reduced efficiency of their cognitive processing system. In other words, the effects of anxiety on performance may depend on the relationship between degree of

anxiety and task complexity. An individual can limit the effect of anxiety when performing a relatively simple task, by exerting extra effort, which can sometimes even improve his/her performance. However, when task complexity increases, anxiety becomes a cognitive interference. More difficult tasks require increased demands on the individual's cognitive processing system, and the extra effort he/she exerts might not be sufficient to compensate for the cognitive interference. Further, anxiety might negatively affect memory, as it may interfere with the transfer of information from short-term to long-term memory (e.g., Tobias, 1992) as well as with retrieving information from long-term storage (e.g., Zeinder, 1998). In light of these findings on the effects of anxiety on cognitive processing, I turn now to consider the role of a specific type of anxiety that pertains the realm of language learning.

2.3.1 Foreign language anxiety

Arnold and Brown (1999, p. 8) argued that "anxiety is quite possibly the affective factor that most pervasively obstructs the learning process." However, early studies on the relationship between anxiety and language learning (e.g., Guiora et al., 1972, Chastain, 1975) were inconclusive, because of the lack of clarity and consistency in defining and measuring the construct of anxiety. Scovel (1978) highlighted that anxiety is not "a simple and unitary construct, but [...] a cluster of affective states" (p. 134).

Research on the role of anxiety in language learning has benefited from two important steps: the identification of foreign language anxiety as a specific form of anxeity, and the conceptual clarification of the distinction between the different types of language anxiety. In two seminal articles (Horwitz, 1986; Horwitz, Horwitz, & Cope, 1986) foreign language anxiety (FLA) was identified as a conceptually separate and distinct construct that correlated weakly with general trait anxiety. FLA is then a situation-specifc type of anxiety identified as "the feeling of tension and apprehension specifically associated with second language contexts, including speaking, listening, and learning." (MacIntyre & Gardner, 1994b, p. 284).

As mentioned for anxiety in general, also FLA can be investigated at different levels of conceptualization, according to the timescale and the perspective on the process adopted. At the trait level, language anxiety is composed of typical patterns of behavior that are stable over a long period of time and across situations (e.g., anxiety when learning or using the L2). At the situation-specific level, language anxiety is defined over time within a specific situation (e.g., anxiety when learning or using the L2 in the classroom). At the state level, the concern is the experience of language anxiety in a specific moment of time, without looking at how frequently it occurred in the past or may occur in the future (e.g., language anxiety as the in-the-moment reaction to a stimulus) (MacIntyre, 2007).

In addition to conceptualizing language anxiety through different timescales, researchers also looked at FLA from the approach-avoidance standpoint. For example, Alpert and Haber's (1960) designed the Achievement Anxiety Test, to identify an individual's facilitating or debilitating anxiety. The authors stated that facilitating and debilitating anxiety are not extremes on a continuum, but, like BIS and BAS, they are independent and "an individual may possess a large amount of both anxieties, or of one, but not the other, or of none of either" (p. 213). According to Scovel (1978) "facilitating anxiety motivates the learner to 'fight' the new learning task; it gears the learner emotionally for approach behavior. Debilitating anxiety, in contrast, motivates the learner to 'flee' the new learning task; it stimulates the individual emotionally to adopt avoidance behavior." (p. 139). Using this framework, Kleinmann (1977) found a significant positive correlation between learners with more facilitating anxiety and their use of generally avoided structures. More recently, building on this model, Spielmann and Radnofsky

(2001) defined language anxiety as a *tension*, an unstable phenomenon which can be *euphoric* (tension which benefits learners) or *dysphoric* (tension which inhibits learning) as a result of the interaction "between a situation, the context of its occurrence, and its interpretation by an individual, [and] whose nature varies according to a number of factors, including expectations and person-environment fit" (p. 262). In their study, the researchers found that tension had facilitating or debilitating effects according to the learners' personal expectations and *a priori* beliefs about language learning, and that the perception of a learning environment that enabled learners' L2 self to emerge as a successful communicator was recognized as providing both cognitive and affective euphoric tension.

Language anxiety has thus emerged in SLA research as a multi-dimensional construct, and investigating it at the trait, situation-specific, state, and facilitating and debilitating levels can provide different and valuable perspectives on how FLA works and affects language learning.

2.3.1.1 Sources of foreign language anxiety

No single source or factor is responsible of FLA, as it is rather the result of the interaction of learners' internal and external factors. Gregersen and MacIntyre (2014) noted that "self-expression is intimately linked with self-concept" (p. 3), thus learning a language can be considered an anxiety-provoking endeavor because of its "personality-altering nature" (Spielmann & Radnofsky, 2001, p. 269). In the same vein, MacIntyre and Gardner (1989) argued that language anxiety stems from the social and communicative aspect of language learning, and Horwitz et al. (1986) said: "because complex and non-spontaneous mental operations are required in order to communicate at all, any performance in the L2 is likely to challenge an individual's self-concept as a competent communicator and lead to reticence, self-consciousness, fear, or even panic."(p. 128). One of the main sources of FLA seems thus to reside in the very

essence of language learning, which can be ego threatening as it involves expressing and exposing oneself as less competent communicators. For Horwitz (1999, p. xii) " the essence of foreign language learning is the communication of personally meaningful and conversationally appropriate messages through unfamiliar and unmastered phonological, syntactic, semantic, and sociolinguistic systems."

Horwitz et al. (1986) investigated what makes FL learners anxious by examining the experiences of FL learners in a support group. Based on these data, the researchers developed a 33-item foreign language classroom anxiety scale (FLCAS), which shows that communication apprehension, test anxiety, and fear of negative evaluation in the classroom are three main components of FLCA. In particular, speaking the FL in front of others, feeling less competent than other learners, being afraid of not understanding all the language input and of making mistakes are the most anxiety-provoking classroom situations for high-anxiety learners. Young (1991b) categorized six types of potential sources of learners' FLA: personal and interpersonal anxieties, learners' beliefs, teachers' beliefs, teacher-learner interactions, classroom procedures, and testing. In particular, studies on FLA also found that low self-esteem (Price, 1991), learners' competitiveness and negative self-comparisons with others (Bailey, 1983, Kitano, 2001), perfectionism (Gregersen & Horwitz, 2002), self-degrading thoughts (MacIntyre & Gardener, 1991), fear of negative evaluations (Horwitz et al., 1986; Kitano, 2001), learners' beliefs about language learning and the 'good language learner' (Young, 1991a), error correction (Gregersen, 2003, Young, 1991a), classroom activities (Koch & Terrell, 1991), and focus of instruction (Kim, 1998; Saito, Horwitz, & Garza, 1999) contributed to FLA. It is clear then that the process of learning a foreign language is anxiety provoking because its communicative and social nature inevitably challenges the learners' self-concept and worldview in both natural and instructional

settings. After considering some of the main causes of FLA, it is also crucial to know how it affects learning and with what effects.

2.3.1.2 Effects of foreign language anxiety on learning

Early research on the impact of FLA on language learning, reported negative correlations between FLA and FL achievements such as course grades and standardized proficiency tests (e.g., Gardner & MacIntyre, 1993; Horwitz, 1986; Phillips, 1992; Trylong, 1987). These findings seemed to hold at various instructional levels and with different languages (e.g., Aida, 1994; Saito & Samimy, 1996; Coulombe, 2000).

More recently, researchers (e.g., Hardison, 2014) developed questionnaires to investigate learners' emotions (positive or negative) when using the FL outside the classroom and specifically during study abroad experiences with native and nonnative interlocutors. In the Communication affective scale (CAS) positive emotions correlated positively with the amount of time learners spent interacting in the FL abroad, and with their oral skills improvements. These findings support the fact that a less confident and more anxious attitude towards speaking the language with native and nonnative speakers outside the classroom can affect learners' proactivity in seizing speaking opportunities and ultimately their L2 achievements.

However, to examine the effects of FLA on the L2 acquisition process rather than only the product, it is necessary to go beyond the overt performance. MacIntyre and Gardner (1994a) investigated the impact of FLA as a cognitive interference (Eysenck, 1979) on three stages of language learning: input (attention, concentration, and encoding), processing (organization, storage, and assimilation), and output (organization of the output and speed of retrieval). To do so, subscales of input (apprehension when taking in information), processing (apprehension

when learning and thinking in the L2), and output anxiety (apprehension when speaking or writing in the L2) were correlated with scores of input (recognition or rapid repetition), processing (time spent studying or responding to a test), and output (production) activities. The researchers found negative correlations between anxiety and processing stages (e.g., longer latencies to categorize the words or studying word pairs). However, longer processing time reduced the impact of anxiety on the output stage, showing that for anxious learners longer processing time compensated for potential detrimental effects on accuracy. On the contrary, at the input stage, when no extra processing time was possible, anxiety negatively correlated also with output scores. Taken together these findings show the cumulative effects of FLA, which affects the learning process at all stages. The authors concluded that "compared to relaxed students, anxious students have a smaller base of second language knowledge and have more difficulty to demonstrate the knowledge that they do possess." (MacIntyre & Gardner, 1994b, p. 301). In sum, anxious learners may learn less and/or perform poorly depending on when anxiety arises. If it arises during the learning process, they might not learn as quickly as relaxed learners, because their learning process suffers from divided attention (self-related vs. task-related cognition). If anxiety arises at the production stage (e.g., in a speaking task), anxious learners might not be able to demonstrate their actual knowledge. Although they can overcome the cognitive interference if their abilities are commensurate with the task, the combination of challenging tasks and high anxiety will result in information-processing and memory-retrieving problems. FLA has thus accumulating effects on specific language learning processes that can lead to differences in the performances of more anxious and more relaxed learners.

Recent studies (e.g., Sheen, 2008; Rassaei, 2015) investigated the modulating role of FLA on the efficacy of feedback. In Sheen's (2008) recasts were found more effective with low-

anxiety students, who also produced more modified output. The researcher observed that anxiety "might have blocked [the capacity of anxious learners] to process the input provided by the recasts and thus limited their ability to benefit from them." (p. 861). Rassaei (2015), who compared the efficacy of recasts and metalinguistic feedback, found that low-anxiety learners benefited from both types of feedback, while high anxiety learners benefited most from recasts. The researcher concluded that corrective feedback that pushes learners to self-correct could further increase learners' anxiety, and might not be ideal for anxious learners.

Although initially FLA seemed to be provoked and to have effects mostly on the oral aspects of language use (e.g., Young, 1991b; Price, 1991), these findings on the impact of FLA on input and processing led researchers to investigate how FLA interferes with the other skills. Kim (2000) found that FL listening anxiety negatively correlated with listening proficiency in English learners in Korea, and Elkhafaifi (2005) found that listening comprehension skills decreased when anxiety increased. As for FL reading, Saito, Horwitz, and Garza (1999) found that FL reading is anxiety provoking and that FL reading anxiety is different from general FLCA. In particular, the researchers also found that learners had different levels of reading anxiety based on their target language, as unknown script and unfamiliar content were not conducive of schemata activation. Another effect of FL reading anxiety was found in Sellers's (2000) study, where reading anxiety influenced recall of passage content. Finally, Cheng (2002) investigated the interaction between FL writing anxiety and other forms of FLA, and found that self-perception of one's writing ability was associated with negative affect toward aspects of communication and social exchanges.

When considering the large amount of different sources and manifestations of FLA, Gregersen and MacIntyre (2014) said that FLA may raise a "chicken-and-egg" issue (p. 6). Also

Horwitz (2001) stated that in the several studies that found negative correlations between FLA and achievement "it is not possible to be sure of the direction of the correlation or to rule out the possibility that some uncontrolled variable is responsible for any relationship which has been observed between the two variables under study." (p. 117). It is in fact often the case that learners who perform poorly in language classes also become anxious. In a series of articles, Sparks and Ganschow (1991; 1993; Ganschow & Sparks, 2000) argued that: "FL learning is based primarily on one's native language learning ability (i.e., language aptitude), students' anxiety about FL learning is likely to be a consequence of their FL learning difficulties, and students' language learning ability is a confounding variable when studying the impact of affective differences (e.g., anxiety, motivation, attitude) on FL learning." (Spark, Ganschow, & Javorsky, 2000, p. 251). In other words, in their view, learners' deficits in linguistic coding are the cause of FLA, and FLA is thus the effect, not the cause of learners' linguistic cognitive difficulties. Although it is true that some anxiety reactions may rather be a response to learning difficulties, also learners with average or high language learning abilities experience language anxiety. To highlight the possible disruptive role of anxiety on learning, MacIntyre and Gardner (1994b) induced anxiety by introducing a video camera in a computerized vocabulary learning and performance task. They found that anxiety arousal impacted performances at the input, processing, and output stages, but when the effects of the video camera disappeared, no performance deficit was observed. However, as noted by MacIntyre (1995), FLA can be considered both cause and effect of poor performances, because it is part of a nonlinear and ongoing learning process, in which variables such as aptitude, cognition, and anxiety function in a cyclical pattern. The author explains that "aptitude can influence anxiety, anxiety can influence performance, and performance can influence anxiety." (p. 95). This spiral relation between

anxiety and performance suggests that the more learners experience failure, the more their anxiety may increase, and be detrimental for their learning and performance. When considering language learning a cyclical process and FLA as a multi-dimensional construct, their complex and dynamic relationship needs to be investigated with methods adequate to capture interactions and variations.

2.3.1.3 Research methods in foreign language anxiety

Since the development of the FLCAS (Horwitz et al., 1986), most research investigating FLA has been correlational (Sheen, 2008), looking at the relationship between trait anxiety (measured with a questionnaire) and L2 achievements (measured with final grades and proficiency tests). In this view, L2 learning is considered a linear causality process, and this type of analysis is an attempt to understand the process of language learning by looking at the product. However, the well-known scenario of learners exposed to the same input who do not learn alike and have different uptakes, shows the unpredictable multi-faceted nature of the SLA process. To understand what happens in the learning process, variations and the dynamicity of the process should be brought to the foreground. In other words, looking at the process ultimately means looking at change and emegence (Larsen-Freeman, 2014).

Some studies used qualitative methods such as thematic analysis of focus groups (Horwitz et al. 1986), semi-sructured interviews (Price, 1991), case study (De Costa, 2015), and triangulation of interviews, classroom observations, journals, and students' papers (Spielmann & Radnofsky, 2001) to unveil the reasons behind learners' anxiety.

MacIntyre and Gardner (1994a) argued that FLA affected not only the product but also the learning process. More so, if FLA is considered in its interaction with other variables it is influencing and by which it is being influenced. Havranek (2002) suggested that anxiety, together with other individual factors, affected the effectiveness of feedback. In the same vein, Sheen (2008) found that langauge anxiety influenced the effects of recasts, with only low-anxiety learners being able to produce modified output after recasts and to perfom better in the post test. Under this perspective, though, anxiety was considered a trait interacting in a process rather than a process in and of itself which interacts with the context in a learning event, shaping and been shaped by it.

A few studies attempted to look at anxiety also during the learning process. Arguably, measuring the variability and fluctuation of state anxiety arises many methodological challenges. Some methodologies used to measure state -like emotions (e.g., task motivation) include preduring- and post- task questionnaires. For example, in his study about the fluctuation of task motivation, Poupore (2013) tried to capture the dynamicity of the construct with a graph which participants filled in every five minutes while doing the task. Although participants reported becoming accostumed to this practice during the different tasks, the author acknowledged the disruptive nature of this technique which can also produce social desirability bias. Baralt and Gurzynski-Weiss (2011) investigated state anxiety caused by task-based interactions in computer-mediated and face-to-face communication. They measured state anxiety halfway through and after each task with a foreign language state anxiety questionnaire, and found that there was no significant difference in learners' state anxiety in the two modalities. MacIntyre and Legatto's (2011) study is one of the first examples in SLA which uses a new methodology (the idiodynamic method) in an attempt to capture the fluctuations of a process (e.g., willingness to communicatie) as it unfolds in real time, trying to avoid reactivity. The following section explains how this method works on a per-second timescale and how it was used to measure statelike affective factors.

2.3.1.3.1 The idiodynamic method

The basis of idiodynamics is the individual acting during an event and its main focus is variability (MacIntyre, 2012). The idiodynamic method aims at looking at the process rather than the product of communication to look for the key drivers of change. Each participant's communicative event is video recorded and re-played for him/her as soon as possible after the performance. By means of a Windows-based software developed by MacIntyre and Legatto (2011) (available from http://faculty.cbu.ca/pmacintyre/AnionVersion2.zip), participants rate on a per-second rate how the affective or cognitive variable(s) of interest rises and falls in the communicative event. This methodology aims to capture changes in internal factors that might not be visible or perceived (or might be misperceived) by an external viewer. The output from the software includes a bitmap graph which is used as a basis for an interview, and an excel speadsheet that reflects fluctuations in participants' ratings. While re-watching the video during the interview, participants provide interpretations of the reasons for the changes (the spikes and dips in the graph). The interview is also recorded, and data are transcribed and analyzed. The triangulation of data enables researchers to gain a better understanding of the emotional and psychological processes as the communicative event unfolds. The idiodynamic method has been used to observe the dynamic and rapid changes of emotions in language learners, such as anxiety during presentations (Gregersen, MacIntyre, & Meza 2014), willingness to communicate (MacIntyre & Legatto, 2011), and approach-avoidance motivation (MacIntyre & Serroul, 2014) in speaking tasks. This method should be seen as complementary to other approaches used in interaction research, as it addresses questions about intraindividual patterns of changes that cannot be addressed with other mtethodologies (MacIntyre, 2012).

CHAPTER 3: THE CURRENT STUDY

3.1 Research questions

In the current study I observe how language anxiety develops during L2 task-based interactions, and its possible impact on the interaction-driven learning process. Participants' improvement in fleuncy and accuracy in the use of two target structures, and the amount of feedback they received in the interactions (dependent variables) are tested to investigate their association with participants' state anxiety, operationalized as high, medium, and low according to its intensity and frequency in the interactions (independent variable). Interaction and stimluated interview qualitative data are triangulated with the goal to have a comprehensive, although situated, understanding of the mechanisms that trigger learners' anxiety during L2 interactions (the reasons), and observe possible effects of anxiety on the flow of the interactive tasks, on participants' reception of corrective feedback, and on their learning. This study is guided by the following research questions:

- 1. a. How do participants' idiodynamic ratings of state anxiety vary when they interact:
 - i. with a native versus a nonnative speaker interlocutor?
 - ii. using a spot-the difference versus a picture-story task?
- 1. b. What are the reasons for variation in participants' state anxiety?
- 2. What is the relationship between trait anxiety as measured by a questionnaire and anxiety state-like development measured by means of idiodynamic ratings?
- 3. How does a participant's state anxiety account for differences in incidence of feedback in interaction-driven learning?

3.2 Experimental design

I investigate the research questions using a mixed methods research with a concurrent embedded design (Creswell, Plano Clark, & Garrett, 2008; Ivankova & Greer, 2015). As explained in Mackey and Gass (2015), in a concurrent embedded design both types of data and analyses contribute to the understanding of the impact of the intervention, with quantitative data (pre-posttest scores) determining the impact itself, and qualitative data concerning participants' experience of it. As Creswell and Plano Clark (2011) noted, by synthesizing quantitative and qualitative results, evidence can be more corroborating and produce a more complete understanding of the research problem. In this study, the quantitative (survey, idiodynamic ratings, and text results) and qualitative (interactions and interviews) data sources were complementary pieces of the complex puzzle of how anxiety develops and may affect learning during L2 interactions. Each research question is addressed by triangulating both types of data, and no question can be answered satisfactorily by qualitative or quantitative data only.

3.3 Participants

3.3.1 The learners of Italian

Participants were 21 (12 female) learners of Italian enrolled in the second (n= 11) and third (n= 9) year of Italian at a large Midwestern university. I recruited the participants by announcing the study in their Italian classes. One participant was self-instructed and was recruited by one of the participants. Twenty participants were native speakers of English and one was a native speaker of Brazilian Portuguese who had been living and studying in the United States for three years. Their ages were 19 to 22 (M=20.5, SD=0.9). Ten participants had spent from five weeks to 3 months in Italy in study abroad programs the previous year. Table 1

provides complete information about the participants

Participants	Semesters of study of Italian	Age	Gender	L1	Study abroad in Italy (weeks)	Other L2s studied	Italian Club
# 1	5	21	F	English			Yes
# 2	4	21	Μ	English		Spanish	No
# 3	5	22	Μ	English	5	French	Yes
# 4	4	19	F	English	6	Spanish Chinese	No
# 5	4	21	Μ	English	7		Yes
# 6	4	20	F	English		Spanish	Yes
#7	4	21	М	English		Russian Spanish Irish	Yes
# 8	5	22	F	English	12	Spanish French	No
#9	5	22	М	English	6	Spanish	No
# 10	5	21	М	English		Latin	Yes
# 11	5	21	М	English	8	French	Yes
# 12	5	20	F	English	6	Spanish	No
# 13	4	20	Μ	English	6		No
# 14	2	21	F	Port	6	Spanish English	No
# 15	4	21	F	English			No
# 16	4	20	F	English		German	No
# 17	Not formally studied Italian	20	F	English		Japanese German	No
# 18	5	21	F	English		Latin, Spanish	No
# 19	4	20	F	English			Yes
# 20	4	19	М	English		Spanish Latin	Yes
# 21	4	19	F	English	6	Spanish French	No

Table 1 Participants' information

3.3.2 The interlocutors

All participants interacted individually with a female native speaker of Italian (the researcher) who had several years of experience in language teaching. She had not formally taught any of the participants, however she was acquainted with some of them through an informal conversation group (the Italian club) run and attended weekly by some of the participants to practice the language. Participants also interacted with a male nonnative speaker collaborator, who was a student enrolled in the third year of Italian at the same university of the participants and shared the same class with some of them. He was an advanced learner of Italian and had spent six months studying at an Italian university the previous year. The nonnative speaker collaborator volunteered to help with the research to practice his oral skills. He was trained to provide corrective feedback through the instructional framework composed of three stages: modeling, practice, and use-in-context (e.g., Sato & Lyster, 2012). In the modeling phase, he was introduced to the different ways to negotiate meaning and provide corrective feedback (in particular recasts, elicitations, and explicit feedback) by means of some examples modeled for him by the researcher on the basis of examples of corrective feedback moves taken from the pilot trial for the current study. After identifying the different characteristics and impact of the recasts, explicit feedback, elicitations, and confirmation checks, in the practice phase the nonnative speaker collaborator practiced giving and receiving feedback by carrying out with the researcher some tasks similar to the experimental ones (spot-the-difference and picture-story tasks). Particular emphasis was given to the less face-threatening nature of correction moves such as recasts, also in the form of confirmation checks. Finally, for the use-in-context phase, the collaborator was encouraged to give and notice corrective feedback during some informal conversations in Italian that took place during the Italian club's weekly meetings the collaborator

himself organized in the weeks prior to the experiment.

3.4 Material

3.4.1 The anxiety survey

Sheen's (2008) eight-item questionnaire (drawn from Dörnyei & MacIntyre, 2006) was used to collect data about participants' language anxiety in the classroom. As the questionnaire is specific for instructed language learning, a 6-item adapted version of Hardison' s (2014) Communication Affect Scale (CAS) was also used, to collect data about participants' emotions (i.e., affect) when they communicate with native (3-item CAS 1) and nonnative speakers (3-item CAS 2) of Italian outside the classroom. All items were measured on an 8-point Likert scale, with 1 corresponding to strong disagreement and 8 to strong agreement with the item (see Appendix). Participants' background information as language learners (see Appendix) was also collected through the same survey.

3.4.2 The tasks

The task material used in the four interactions and in the pre and posttests consisted of 1) pictures of a room (a kitchen and a living room); and 2) picture stories depicting an initial event, with a complication, and a solution. The material was chosen because it provided contexts for the targeted structures, could be used as one-way (pre-posttest) and two-way (interactions) tasks, and had face validity, as it was similar to classroom material used in Italian classes.

3.4.2.1 Pre-posttest

Participants were asked to describe the picture of a living room in which some of the items were colored. Next, they were told to recount what had happened to the man in the picture

story the day before.¹ The pictures and the stories in the pre and posttest were similar but not identical. Both pictures of the rooms portrayed mainly kitchen tools and living room furniture (e.g., cup, glass, bottle, vase, flowers, candle, chair, window, table, bookshelf) colored in yellow, red, blue, and green, or black and white. In the pretest, the picture story showed that the wind had blown away a wet-paint sign on a freshly painted bench, and a man, who sat on it to have his lunch, became angry because he got paint all over his coat. He then went to a dry cleaner to have it washed. Similarly, in the posttest, a man bought take-out lunch and went to the park to eat it, but his lunchbox was knocked down by a ball thrown by some children who were playing. The man was upset and the children went to the shop, to buy him his lunch again. In the stories the signs of the shops and the note on the bench were written in Italian.

3.4.2.2 Interactions

The interactions included spot-the-difference and information-gap picture story tasks. For the spot-the –difference task, participants were given a picture slightly different from the NS and NNS interlocutors' picture. They were instructed to describe their picture and ask questions to find out as many differences as possible. They were not told about a preset number of differences they should find and if the difference depended on colors, number, or location of items. However, the pictures differed mainly in the color of some items, with the aim of eliciting participants' production of noun-adjective gender agreement. For example, in one picture, a red armchair was on the right and a non-colored (white) couch was on the left, while in the other picture they were swapped and the armchair was green. In this case, the participant would have to say for example "*c*'*è* una poltrona rossa a destra e un divano bianco a sinistra" [there is a red armchair on the right and a white couch on the left]. Other objects such as a lamp, and a vase

¹ As the task material is copyrighted, it is not included in the Appendix and a description of the material is provided instead.

with flowers had different colors, while a cup and a bottle had different colors and were also in different places (e.g., on the table, on the floor or on the shelf). The colored objects were the same (with different colors) in the pre and posttests and the interactional tasks, except three (clock, box, and knife), which were only in the interactional tasks.

For the picture-story task, participants were instructed to follow a storyline (a numbered sequence of pictures) and describe what the protagonist of the story had done the night before. The NS or NNS interlocutor was the protagonist of the stories. He had confused memories of the events, corresponding to the scrambled order of the pictures in his/her task-sheet, because in one story he had drunk too much, and in the other he had been sleepwalking. The NS or NNS interlocutor had to number the scrambled pictures in the correct order, according to the participant's narrative (from Bailini & Consonno, 2005, p. 63-67). In the present study, the interactive experimental tasks, as well as the pre-posttests, aimed at eliciting learners' spontaneous production of the target structures, as well as offering opportunities for corrective feedback (e.g., recasts) of the target structures during interactions.

3.4.3 The target structures

The spot-the-difference tasks focused on eliciting noun-adjective gender agreement, while the picture-story tasks focused on the use of the past tense (*passato prossimo*). The choice of target structures was based on theoretical and pedagogical grounds (see Chapter 2). Although both structures are taught in the first semester of Italian at the university where the participants were recruited, their acquisition and automatization usually take a long time and might not reach native-like attainment. Research studies on the acquisition of these two target structures showed that even near- native L1 English learners exhibited competence incompleteness in the use of the auxiliary verb to be in the *passato prossimo* (Sorace, 1993) and deficits in the performance of

gender agreement (see Franceschina, 2005 for the acquisition of gender agreement in Spanish). These structures may therefore have been familiar but still problematic for the participants in this study, who were in the second and third year of Italian.



3.4.4 Idiodynamic rating of anxiety

Figure 1. Graph of idiodynamic rating of anxiety (participant # 4, NS story)

By means of a Windows-based software developed by MacIntyre and Legatto (2011), participants watched the recordings of their four interactions and rated how their anxiety increased or decreased. The output of the rating included a bitmap graph (see figure 1) and an excel spreadsheet which showed for every second what anxiety level the participant clicked on. In the graph, in figure 1, the x-axis represents the time of the interaction (in seconds), while the y-axis represents the anxiety levels from + 5 to - 5. In this example, the participant's interaction lasted 303 seconds (5 minutes and 3 seconds), during which her anxiety fluctuated from zero to +3, and also decreased to comfort levels below zero. When participant did not actively click to keep the anxiety at a certain level, the line defaulted to zero.

3.4.5 Stimulated interviews

The videos of the interactions and the graphs representing the spikes and dips of participants' anxiety were used to prompt participants to provide reasons behind their increasing or decreasing anxiety during the tasks. Interviews were guided by the following questions: (1) Why did you feel more (or less) anxious at that point? (2) Why did anxiety raise /fall at that time? At the end of the stimulated interview session, participants were asked to provide general comments on the two task types and the two interlocutors, and to compare the anxiety they experienced in the experiment with how they feel in their Italian class. The general questions were: (1) Was there any difference between the two tasks? (2) Was there any difference when you interacted with me (NS) or with A. (NNS)? (3) Do you usually feel as anxious in your Italian class (and/or when speaking Italian in other contexts)?

3.5 Procedure

One week before the experiment, participants filled in the online survey (background information, 6-item CAS 1 and CAS 2, and 8-item language anxiety questionnaire) using a pseudonym of their choice. To protect participants' anonymity, their data were always registered with their pseudonyms and are reported here with the progressive number assigned to them. Participants individually met with the researcher, signed an informed consent form, and recorded their oral pretest (picture description and picture story tasks). To avoid creating test anxiety, the pre and posttest tasks were not presented as tests but as opportunities for participants to practice the language. Each participant carried out the tasks individually with the researcher who gave them instructions on the task, but did not provide any feedback on their performance. No time limit was set for the tasks. On experiment day, each participant was video-recorded with Microsoft media player software, while he/she carried out the four interactional tasks (two spot-the-difference and two interactive picture-story tasks) with a NS (the researcher) and a NNS of Italian. The order in which they interacted with the NS and NNS interlocutors, and the sequence of the tasks were counter-balanced. To avoid overload during the interactions, the NS and NNS interlocutors provided corrective feedback in particular for errors concerning the two target structures. Nevertheless, feedback in the form of clarification requests and confirmation checks was provided every time it was necessary to make sure that the information was correctly understood, to keep the flow of the interaction as natural and similar to real-life interactions as possible, and the task ecologically valid. Each task lasted approximately five minutes for a total of a 20-minute interaction per participant (about 10 minutes with the NS and 10 minutes with the NNS). The shortest interaction was two minutes and 46 seconds, and the longest was eight minutes and 40 seconds. The average was 5 minutes and 18 seconds, with a standard deviation of 1 minute and 27 seconds.

Immediately after completing the last task, the recorded videos were uploaded on a software so that the idiodynamic rating could be completed. Participants individually watched each video and rated, by clicking the mouse buttons, how their language anxiety rose or fell on a second-by-second basis during their interactions. Each click could either raise or lower the rating of one level, for a maximum of +5 to a minimum of -5. A bar next to the video displayed the level of anxiety the participant was clicking every second. Participants were alone during the rating process, which lasted about the same duration as the original interactions. Figure 2 is an example of what participants saw on the screen while they were dynamically rating their state anxiety.

Anion Variable Tester Level of +5 -5 Level of +5 -5 Seconds of Data to be stored 31 Increase Length of Dip (in seconds) 321,488 Decrease Finished

Figure 2. Example of participants' screen display during the idiodynamic rating.

A graph of the rating was printed out (see figure 1) and used as a basis for an immediate stimulated interview. Each participant, in turn, re-watched their videos with the researcher and was asked to account for the changes in their state language anxiety (the spikes and dips in the graphs). Participants were instructed to comment freely on the videos any time they wanted to. When fluctuations in their idiodynamic rating occurred, they were also asked to account for them. The interview lasted about 60 minutes and was recorded and transcribed for further analyses. The experiment session lasted approximately 2 hours and participants received monetary compensation for their participation. A few days after the experiment, participants took an oral posttest (similar to the pretest), which was recorded and transcribed. Table 2 summarizes the data collection procedures.

 Table 2 Summary of the data collection procedure

Time		Activity	Duration
Time 1	One week before	Online survey	15 minutes
Time 2	One week before	Oral pretest	10 minutes
Time 3	Experiment day	Interactions with NS and NNS	20 minutes
		Idiodynamic rating	20 minutes
		stimulated interviews	60 minutes
Time 4	3-4 days after	Oral posttest	10 minutes

3.6 Analysis

Among the 21 participants, 20 carried out two tasks with the NS and two with the NNS. For technical reasons, however, one participant only carried out the two tasks with the NS. The data sources amounted therefore to: 1) 82 transcriptions of the interactions in Italian, 2) the corresponding graphs of the idiodynamic ratings of anxiety, 3) the transcriptions of the stimulated interviews, 4) the survey results, and 5) the transcriptions of the pre and posttests. The statistical analyses were run using the SPSS software (version 19), and coding was carried out with the software NVivo 11.

3.6.1 Research question 1

To investigate how participants' state anxiety varied over the course of the four taskbased interactions, I first explored the idiodynamic ratings quantitatively to assess possible effects of tasks and/or interlocutors on the rating. I compared the means of participants' ratings across the two task types (spot the difference and picture story) and two interlocutors (NS and NNS). Because the mean ratings of one task (i.e., the picture story with the NS) were not

normally distributed, I used the nonparametric Wilcoxon signed-rank test.

Previous studies using the idiodynamic rating (Gregersen, MacIntyre & Meza, 2014, MacIntyre, 2012; MacIntyre & Legatto, 2011; MacIntyre & Serroul, 2014) have shown that this method can capture two important aspects of state-like emotions: depth and breadth. Idiodynamic rating can show both the intensity of the emotion experienced (the depth), by showing how often participants clicked on each level (from +5 to -5), and its variability and fluctuations (breadth), by showing how spread the clicks are between high and low levels. To find patterns in participants' dynamic rating of anxiety without losing the important information of its fluctuation, instead of considering only the mean of each participant's rating, I also examined the amount of time each participant reported feeling anxious at the different anxiety levels (from - 5 to + 5) during each interaction. I considered the majority of time spent on certain levels as an indicator of a trend for that participant in that task. Three main trends emerged from this observation: individuals who could be characterized as having high, medium, or low anxiety levels. To assess how participants' idiodynamic ratings patterned into these three main categories, I first had to consider the following factors: 1) participants' different time on task, and 2) participants' different clicking behaviors.

For the first factor, time on task, I took into account that not all participants interacted for the same amount of time. Although the time limit for each task was five minutes, some participants completed the tasks in three minutes, while others went over the time limit and were stopped as soon as it seemed appropriate and natural in the context of the interaction. Comparing participants' raw numbers of clicks on each anxiety level would have meant using the interactional time of the participant with the shortest interaction, with the result of leaving out a great portion (almost half) of data for the rest of the participants. In consideration of the different

durations of the interactions, to compare participants' ratings, instead of using raw numbers of clicks, I calculated the percentages of participants' clicks on each anxiety level (from high anxiety, + 5, to the lowest anxiety, - 5).

The second factor that I considered when looking at percentage of time (i.e., percentage of clicks) participants spent on the different anxiety levels was participants' clicking behavior. Some participants clicked 50% or more of their interactional time, starting clicking as early as second 3 or 4 of the interaction. They therefore actively signaled changes in their state anxiety from the very beginning of the task. Other participants clicked less than 50% of the time, starting clicking, in two cases, as late as over a minute after the beginning of the interaction. These different clicking behaviors clearly show participants' subjective interpretation of the rating tool, which, although inevitable, can also be a limitation and opens the way to speculations about participants' choices to actively rating changes or passively letting anxiety levels defaulting to zero.

Taking into account each participants' different clicking behavior and different clicking starting points, I considered the time each participant spent not actively clicking (rating at zero) as their own anxiety baseline for each particular task, most likely their trait anxiety. Consequently, the percentage of clicks on each anxiety level was computed on the basis of the total amount of seconds each participant spent actively clicking. In the example in figure 1, the total task time was 303 seconds. The participant did not click and/or let anxiety default to zero for a total of 133 seconds. The percentage of clicks on the different levels was thus computed out of the total amount of clicks, which is the 170 seconds the participants actively clicked and signaled variation from her baseline. In other words, participants' high, medium, or low state anxiety for each task was calculated on the basis of the intensity and frequency of the anxiety

they actively signaled with their clicks.

Based on these criteria, 1/3 of each participant's clicks were on anxiety levels 1 and 2. I considered what happened in the other 2/3 of their clicks as an indication of particular patterns. Table 3 summarizes the criteria for group composition.

Table 3 Criteria for the composition of the anxiety groups based on percentages of clicks

Groups	Percentage of clicks	Percentage of clicks	Percentage of clicks
	on levels below zero	on levels 1 and 2	on levels 3, 4 and 5
High anxiety		At least 33%	At least 33%
Medium anxiety		At least 66 %	
Low anxiety	At least 33%	At least 33%	

Participants whose anxiety was on levels 1 and 2 for another third of their clicking time (for a total of at least two thirds of the time) were categorized as medium anxiety. Participants whose anxiety was on levels 3, 4, and 5 for at least another third of their clicking time (for a total of two thirds on levels from 1 to 5) were assigned to the high anxiety group. Finally, participants who experienced at least a third of their anxiety on levels below zero (for a total of two thirds of the time on levels 2 to -5) were categorized as low anxiety.

After assessing the magnitude and frequency of participants' anxiety during the interactions, I coded the stimulated interviews to explore the reasons behind anxiety fluctuations. When participants provided comments for the increases (spikes) and decreases (dips) in anxiety in the graphs resulting from their ratings, these were coded with a general inductive approach (Thomas, 2006), which has the purpose to let categories and themes emerge from the raw data without any prior assumption. I uploaded the transcripts of the interviews in NVivo, where I created nodes to describe the reasons participants provided for their anxiety. Then, through

recursive reading, I grouped the nodes into main themes and subcategories. For examples under "reasons for increase in anxiety", the category "I didn't know how to say what I wanted to say" was divided into the subcategories "I didn't know the word or verb" (lexis) and "I didn't know how to conjugate the verb" (grammar).

By triangulating the data sources, I coded in NVivo each reason participants provided with the level of anxiety referred to in the graph, and the anxiety group participants belonged to. This enabled me to observe how often and why participants in the different anxiety groups (low, medium, and high) felt anxious in each task. I also observed qualitatively how participants in the high and low anxiety groups dealt with high anxiety situations (level 5), and whether they corresponded to communication breakdowns (negotiations for meaning) or linguistic errors and corrections.

Finally, participants' answers to the general questions regarding their attitude toward the tasks, the interlocutors, and the relationship between the experimental session and their classroom anxiety were also analyzed thematically, by coding the reasons participants provided to support their opinions. In particular, I analyzed the data to understand participants' goals and expectations for the interactions. The analyses aimed to observe both how anxiety is triggered by internal or external factors, and how participants' trajectories differed or aligned when dealing with anxiety in realtime.

3.6.2 Research question 2

To investigate the relationship between participants' assessment of their general anxiety (trait anxiety) toward L2 learning and speaking and the in-the-moment anxiety they experienced during the interactions, I ran Kendall's Tau correlation tests between participants' scores of the language anxiety questionnaire and CAS 1 and CAS 2 and the mean of the idiodynamic ratings

within each task. Kendall's Tau correlation coefficient is a non parametric measure suitable for small sample sizes. To calculate the means for the survey, the items in the questionnaires were adjusted so that all responses ranged from 1 (least anxious) to 8 (most anxious). For example, the positively worded 6-item CAS was reversed, so that higher scores meant less comfort and confidence in speaking with native and nonnative speakers. The survey scores were calculated by computing the toal score for each participant in each scale and diving it by the number of items in the scale, so that each participant received an average score on a scale from 1 to 8. I also computed the reliability coefficients (Cronbach's alphas) for each multi-item scale. For a better understanding of how results of language anxiety questionnaire and CAS related to participants' state anxiety, I also analyzed participants' general comments, looking in particular at their perception of anxiety during the experimental session (state anxiety) compared to their classroom anxiety (trait anxiety).

3.6.3 Research question 3

To address the question of how participants' in-the-moment (state) anxiety affected their learning process during task-based interactions, I first compared pre and posttest scores to look for possible significant differences, as signs of an impact of the experimental session. As the data did not fit the assumptions of parametric tests (in particular normal distribution), I used Wilcoxon signed-rank tests. Next, I investigated whether the anxiety participants experienced during the interactions (low, medium, high anxiety group as independent variable), affected the gain scores, and the number of corrective feeback they received (dependent variables). Kruskal-Wallis test, also a nonparametric test, was used, because the data did not meet the assumption of normal distribution for parametric analyses.

3.6.3.1 Pre and posttest scores

Learning as a result of the interactional experiemental session was operationalized as participants' increased fluency, increased accuracy in the use of the target structures from pre to posttest oral perfromance, and also as the increased number of attempts to use the target structures.

3.6.3.1.1 Accuracy in noun-adjective agreement

Building on previous interaction studies which calculated accuracy as the ratio of the accurate use of the target structure to obligatory contexts, in the pre and posttests I calculated participants' accuracy in noun-adjective agreement in the picture description task by assigning one point for each adjective marked with the correct gender and number and zero points for each adjective that did not agree with the noun gender and number (see Example 6 *a*. and *b*.).

Example 6: Noun-adjective agreement accuacy scoring

а.	Una tazza gialla	A FemSing cup FemSing yellow FemSing	(1 point)
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b. Una teiera azzurro A FemSing teapot FemSing blu MascSIng (0 points)

Only adjectives that overtly showed agreement were included, while adjectives which remained unaltered for masculine and feminine singular nouns, such as *verde* [green], were included in the score only when they occurred in the plural form so that number agreement was overtly showed (see Example 7).

Example 7: Noun-adjective agreement scoring with adjectives ending in -e

Le bottiglie verde The FemPlur bottles FemPlur green Masc/FemSing (0 points) Further, only in cases of nouns with the opaque ending *-e*, such as *scaffale* [shelf], based on the assumption that determiner choice is the most immediate reflection of gender assignment

(Carroll, 1989), the point was given when the adjective agreed with the determiner, which provided evidence of the gender the participant had assigned to the noun and the consequent agreement choice (Example 8).

Example 8: Noun-adjective agreement scoring with nouns ending in -e

Le scaffale bianche The FemPlur shelves MascSing white FemPlur (1 point)

3.6.3.1.2 Accuracy in the use of past tense (passato prossimo)

In the picture-story task, I assigned one point every time participants used the past tense correctly (correct conjugated auxiliary verb and past participle) (Example 9 a. and b.). The number of attempts to use the past tense were also calculated.

Example 9: Past tense accuracy scoring

a. Signor Bianchi h	ha letto	[Mr. Bianchi has read]	(1 point)
b. Lui non visto seg	gno	[He not seen sign]	(0 points)

3.6.3.1.3 Fluency

In the current study, fluency was operationalized by pruned syllables per minute. After all dysfluencies, such as self-corrections, self-repetitions, false starts, non-lexical filled pauses, words in the L1, and asides were removed, the transcription of participants' performance was uploaded in a free online tool (<u>www.sillabare.it</u>) to count the syllables. The result was divided by the time taken to do the task (in seconds), and multiplied by 60.

3.6.3.1.4 Gain scores

Gain scores, the dependent variables used to represent participants' improvement (i.e., learning) from pre to posttest, were claculated by substracting pretest scores of accuracy, fluency and number of attempts from posttest scores. This yielded five indications of learning: accuracy

gain scores for noun-adjective agreement and past tense, gain scores for increased number of attempts to use the two target structures (agreement and past tense), and fluency gain score. Participants with gain scores above 80% (a subjective cut off) in both the pre and posttest were excluded from the Kruskal-Wallis test because the ceiling effect would erroneosly result in no gain score. This was the case for four participants in the picture-description test (noun-adjective agreement), and one participant in the picture- story task.

3.6.3.2 Interactions' coding process

To determine the quantity and quality of instances of corrective feedback that occurred in the experimental session, the 82 interactions were coded in NVivo for 1) negotiations for meaning (clarification requests, confirmation checks, and comprehension checks); 2) corrective feedback (recasts and explicit corrective feedback); 3) accurate or inaccurated response to corrective feedback. To investigate the reliability of coding, a second rater coded a sample of 20% of the interactions (n = 16) and the percentage agreement score was 86 %

CHAPTER 4: RESULTS

The results presented in this chapter are organized by research questions. I examine how participants' state anxiety varied in the four task-based interactions, first by investigating whether it varies as an effect of the tasks or of the interlocutors. I then turn to consider the variation in terms of intensity and frequency, and the reasons that triggered it. I also triangulate occurrences of self-rated high-anxiety episodes and corresponding interaction data to shed light on how high anxiety plays out in real time for participants with different anxiety profiles. I finally analyze participants' general comment to investigate the role of their expectations and beliefs in inducing anxious reactions to stimuli (RQ 1). Next, I examine the relationship between participants' state anxiety and their trait anxiety measured by a survey (RQ 2). Finally, I look at whether participants improved from pretest to posttest, and whether their improvement, and the amount of feedback they received during the interactions is associated with the anxiety levels they experienced in the tasks (RQ 3). For the statistical analysis, the alpha level was set at .05 ($\alpha = .05$).

4.1 Research question 1: Variation of state anxiety during the interactions

4.1.1 Effect of task type and interlocutor

Participants' mean ratings of their state anxiety in the four interactions were in general on the anxious side of the ledger (positive mean ratings). This is illustrated in Figure 3, which shows how the 21 participants (x -axis), rated their anxiety in the four different tasks (spot the difference and story with NS and NNS). Only few participants' mean rating for a few tasks was around or below zero (e.g., participants # 3, 5, 7, and 10).



Figure 3. Participants' mean rating for each task

This suggests that in general, participants felt somewhat anxious during the tasks, but the high variability across the positive ratings also suggests that they felt more anxious in some tasks than in others. Participants' mean rating was generally higher in the picture-story (story) tasks than in the spot-the-difference (std) tasks (see Table 4).

Table 4 Descriptive statistics of idiodynamic rating per task

Task	N	Minimum	Maximum	Mean	SD
NNS spot-the-difference	20	-1.27	2.59	.67	.93
NS spot-the-difference	21	24	2.08	.63	.73
NNS story	20	92	2.95	1.09	.97
NS story	21	09	2.25	.86	.68

Moreover, the standard deviation of participants' mean ratings was higher when they interacted with the NNS interlocutor compared to the NS. This suggests that anxiety and comfort levels differed among participants when they carried out the tasks with a proficient NNS peer, while there was slightly less variation in their mean ratings when they interacted with the NS interlocutor.

The comparison of participants' mean rating between task type (Spot-the-difference and picture-story) and interlocutors (NS and NNS) with the Wilcoxon signed-rank test showed that the anxiety ratings in the picture-story tasks with the NS and NNS were significantly higher than in the spot-the-difference tasks, with medium effect sizes (see Table 5).

Tasks (Median)	Ζ	р	r
NNS story (.96) - NNS spot-the-difference (.54)	-2.520	.012*	39
NS story (.65) - NS spot-the-difference (.34)	-2.747	.006*	42
NS story (.65) - NNS story (.96)	-2.389	.017*	37
NS spot-the-difference (.34) - NNS spot-the-difference (.54)	-0.896	.37	14

Table 5 Wilcoxon signed-rank test between task types and interlocutors

Although there was no significant difference in participants' anxiety ratings when they carried out the spot-the-difference tasks with the two different interlocutors, the anxiety ratings differed significantly when they carried out the picture-story tasks with the NNS and the NS, and the effect size was medium. These results suggest that there was an effect of task type on participants' anxiety levels, with the picture-story tasks being more anxiety inducing than the spot-the-difference tasks. Further, an interlocutor effect contributed to raise participants' anxiety in the picture-story task, but did not play a significant role in the spot-the difference task.

Data from participants' general comments at the end of their stimulated interviews lend support to these findings. Some participants clearly stated that they found the story task more challenging and anxiety inducing than the spot-the-difference, mainly because it involved vocabulary they did not know or remember, it required more complex cognitive processes, and it was less interactional. This position is summarized by the excerpts in Example 10.

Example 10: Picture-story task more challenging and anxiety producing.

<u>Participant # 5</u>: "[In the spot-the –difference] it was easier because everything was right in front of you, and you could grab what you need and move on. But when you're telling a story you have to be fluent enough for the person you're talking to, to understand. So,
before [in the spot-the-difference] I could just say '*tavola*', and you would know to look at the table...and everything else could be wrong, but you know what's on the table. In the story, you can't just say one word and expect the other person to know everything." <u>Participant # 3</u>: "This one [the story] was harder than identifying objects, this is more explaining, so there's more thinking involved ... 'how do I explain this?' "

<u>Participant #8</u>: "It was colors and some kind of objects versus having to describe the whole situation with verbs and tenses...it's much more stressful."

<u>Participant # 12</u>: "I think I was more calm [in the spot-the –difference] because you were talking more. When you were saying something I was like ok."

The excerpts show that participants realized that the two task types focused on different target structures and abilities. While the spot-the-difference focused on the description of objects, the story focused on the description of a sequence of actions and required participants to conjugate verbs and use tenses, which was found in general more challenging. According to the ACTFL Guidelines (2012), L2 speakers in the advanced level are able "to narrate and describe in the major time frames of past, present, and future" (p. 6) with good control for advanced mid, and some control for advanced low. Also at the intermediate high level L2 speakers can narrate and describe in all major time frames, "but not all the time" (p: 7), while intermediate mid L2 speakers "have difficulties [...] manipulating time and aspect" (p.7). The picture story task seems therefore to focus on a structure associated with advanced proficiency levels, and this might have contributed to participants' perception of greater difficulty in carrying out the task and thus resulted in increased anxiety.

However, a few participants had opposite views, and perceived the spot-the-difference task as more challenging, because they did not remember the vocabulary they had studied in their first semesters of Italian (e.g., the colors), or they were worried about the information gap being too big when they did not share the same information with the interlocutor. This position is summarized in the excerpts in Example 11.

Example 11: Sport-the-difference task more challenging and anxiety producing.

<u>Participant # 21</u>: "Describing the differences is a bit more challenging.[...] Describing a story...it is a bit easier to try to go around what you want to say, and in this [spot-the-difference] there were the freaking colors."

<u>Participant # 13</u>: "I felt better during this one [the story] because we had the same story. In the other [spot-the-difference] we had to figure out our differences, which I thought it was hard to do…because it's hard to understand each other."

<u>Participant # 17</u>: "The one we had to compare was much harder, because you can't actually see what your partner has. It's kind of annoying."

The excerpts in examples 10 and 11 show that participants perceived task complexity according to their own ability to cope with the task demand, especially in terms of the vocabulary they knew. Participants' variability in judging how comfortable they are with different activities is consistent with Koch and Terrell's (1991) study in which none of the activities used to reduce learners' anxiety were assessed as 'comfortable' by all students. It is noteworthy though, that in the current study, participants who had opposite perceptions regarding which task was harder (e.g., participant # 12 and 13), mentioned factors that alleviate anxiety as reasons for a task being easier than the other. Both task types were based on information gaps,

but in the spot-the-difference both interactants acted as requesters and providers of information (two-way information flow), while in the picture-story the participant was the only supplier of information (one- way flow). Participant # 12, who found the spot-the-difference task easier, hinted at the fact that it was a two-way task, which involved a more active participation of the interlocutor, and she felt relieved when the interlocutor spoke because she did not have to. Similarly, participant # 13, who found the one-way story easier, felt that sharing the same images of the interlocutor alleviated the anxiety of not understanding or being understood by his interlocutor. In both cases, it was the perceived level of collaboration involved in the task that made participants consider one task easier, and therefore less anxiety inducing, than the other.

As far as the difference between NS and NNS interlocutors is concerned, participants' significant higher anxiety experienced in the picture-story task with the NNS, is also reflected in the participants' general comments. Although several participants stated that they usually feel equally anxious when they speak with NSs and with more proficient speakers in general, many also said that in the experimental session they felt more anxious when they interacted with the NNS peer. The reasons provided were manifold, but they can be summarized in participants' fear of comparisons and of being judged by a more proficient familiar (or unfamiliar) peer. On the contrary, participants seemed to fear less the judgment of a (relatively) familiar adult NS. The excerpts in Example 12 illustrate these positions.

Example 12: Interlocutor's higher proficiency and/or unfamiliarity as anxiety producing factors.

<u>Participant # 4</u>: "I've known [the NNS] from class and I know he is really good at speaking Italian. It does give me a little bit of anxiety. I feel the same way with you [NS]. Knowing when someone is a lot better than me...I don't know you so well, such a good

level as my family...I feel little less comfortable making mistakes, whereas with my family, who cares if I say the wrong word! I feel more uncomfortable making mistakes with native speakers or someone who's so much better than me."

<u>Participant # 8</u>: "I get really anxious when I feel like someone is really advanced, I feel like I'm struggling...when I'm not at that person's level and they say things and I don't understand them. That makes me nervous. [...] I'm more anxious with my peers. I just feel adults... maybe they are already advanced and they are more patient because they know I'm just a student...but with my peers I compare myself because I feel like they're at this level and I'm down at this level."

<u>Participant # 10</u>: "Usually when I talk to him [NNS] I feel like 'Wow! My Italian is really bad!' He is really good, so in comparison, I feel really bad. [...] I feel he is so much better than me...when I'm like trying to come up with something, when I'm like stopping the conversation, in my head he is probably just like 'Why am I wasting my time with this kid who cannot speak Italian?' I know he is not."

<u>Participant # 7</u>: "I was more nervous with [NNS] because I knew he was a better speaker. The professor or a native speaker is obviously better than you."

<u>Participant # 21</u>: "With you [NS] it was easier because I'm more familiar, I feel more comfortable talking to you I guess. Like when you are overseas you get more comfortable talking with people you know rather than people you don't."

In contrast with Gregersen's (1998) conclusion that "the presence of a high proficiency student in dyadic exchanges positively increases the emotional reaction to the communicative act" (p. 163), the excerpts show that participants' perception of the interlocutor's higher L2

proficiency can play a role in raising anxiety. In the current study, it seems to be the case in particular with the peer interlocutor, as a consequence of comparison mechanisms which may trigger self-deprecatory comments, perceived negative self-efficacy, and fear of negative evaluation (e.g., participants # 8 and 10). As noted by participant # 7, speaking with a proficient adult (e.g., a teacher) or a native speaker does not trigger the same comparison mechanisms. Nevertheless, native speakers might still induce anxiety because of their status (e.g., participant # 4). This is in line with previous findings (Bailey, 1983; Kitano, 2001; Price, 1991), which highlighted that learners' self-perceived poorer speaking ability compared to that of peers and native speakers caused or aggravated learners' anxiety as they saw themselves as less proficient and feared their peers' negative evaluations when they made errors.

Finally, in the current study, when participants were equally unfamiliar with the two interlocutors (e.g., participant # 21), one single previous meeting with the NS during the pretest seemed to have created familiarity, and thus a less anxious approach to the L2 interaction. However, familiarity seems to have played a marginal role in reducing anxiety with the NNS among participants who were his classmates. Only three participants said that they felt less anxious with the NNS peer because they knew him and knew that he was a nonnative speaker like them. Participant # 18 said: "I knew him and I was ok. Well, he is not a native speaker and he is very good [...] I wasn't just nervous 'cause I thought 'oh well, if I mess up that's fine'." These results unveil a complex interplay between interlocutor's characteristics such as familiarity, proficiency, and nativeness, with interlocutor's higher proficiency being in general the most anxiety-inducing factor, regardless of the nativeness status. Familiarity seems to alleviate anxiety (e.g., participants # 4 and 21), but its mediating role is limited when peer comparisons arise (e.g., participants # 8 and 10). On this regard, participant # 21 said: "You

know, having a new person I was 'don't judge me!' You don't know the person, you don't want to leave a bad impression." Similarly participant # 16 commented: "I knew you and stuff [from the pretest], so I was more comfortable with you than with some stranger, I thought he was Italian which may have made it more intimidating, because I was like 'he's judging me'." It is clear that the perception of the higher proficiency and unfamiliarity decreased participants' comfort level and were perceived as threatening to participants' self-esteem.

After observing the main trends of participants' anxiety ratings in the different task types with the different interlocutors, I now turn to consider state anxiety variations during the interaction by looking at two key features: intensity and frequency.

4.1.2 Intensity and frequency of state anxiety

The analysis in the previous section highlighted that there was within-participant variability of state anxiety across the four tasks during the experimental session. To capture how anxiety varied for each participant in each task, I calculated the frequency participants rated their anxiety at the different levels (from +5 to -5). This observation takes into account the two dimensions of state anxiety: its intensity (here the anxiety levels participants clicked on) and its frequency (how often they clicked on each anxiety level). In 78 interactions out of 82, at least 1/3 of participants' anxiety (at least 33% of clicks) was on levels 1 and 2. This was the case in all but four interactions (participant #5 NNS story and NS std, and participant # 13 NS std and NNS std), in which participants' percentage of clicks on levels 1 and 2 did not amount to 1/3 of their total clicks, as they rated most frequently levels below zero and above level 3. However, in all the other cases the common trend was that out of each participant's total amount of clicks, at least 1/3 was on levels 1 and 2.

To assess how participants' anxiety varied, I observed how it increased or decreased in the remaining 2/3 of their clicks. When another third of participants' clicks were still on anxiety levels 1 and 2, they were categorized as medium anxiety, because at least 66% of their clicks were on levels 1 and 2. When another third or more of participants' clicks were on levels below zero, participants were categorized as low anxiety, and when another third or more was on levels 3, 4, and 5, participants were categorized as high anxiety. Figures 4, 5 and 6 are a visual representation of how the three anxiety groups look for the NS story task. The participants included in the group are represented by their identification number on the x-axis. The colored sections of the bars represent the percentages each participant clicked on the different anxiety levels. The black sections are the percentages of seconds (i.e., clicks) spent in the comfort zone (below zero), the dark grey sections are the percentages of clicks on low anxiety levels (levels 1 and 2), and the light grey are the percentages of clicks on the high anxiety levels (3, 4, and 5).



Figure 4. Medium anxiety group for the NS story task.

Participants in the medium anxiety groups (e.g., Figure 4) rated 66% or more of their anxiety at levels 1 and 2 (dark grey section), participants in the low anxiety groups (e.g., Figure

5) rated 66% or more of their anxiety at levels from 2 to -5 (dark grey and black sections), and participants in the high anxiety groups (e.g., Figure 6) rated 66% or more of their anxiety at levels from 1 to 5 (dark and light grey).



Figure 5. Low anxiety group for the NS story task.



Figure 6. High anxiety group for the NS story task.

Variability in intensity and frequency appears to be a key feature of state anxiety, as shown by the differences among and within the anxiety groups. An example of within-group variability can be seen from comparing two individuals in the high anxiety groups in the NS story task: participant # 14 and # 2 (Figure 5). Participant # 14 has a higher percentage of anxiety at levels 3 to 5 anxiety than participant # 2. However, both participants are in the high anxiety group because they are within the criteria set for the operationalization of high anxiety (at least 66% of their anxiety was rated at levels 1 to 5).

Participants	NS story	Task	NNS story	Task	NS std	Task	NNS std	Task
		sequ.		sequ.		sequ.		sequ.
#1	High	3	High	2	High	4	Medium	1
#2	High	3	Medium	2	Medium	4	High	1
#3	Low	2	Low	3	Low	1	Low	4
#4	Low	3	Medium	1	Low	4	Low	2
# 5	Low	3	High-Low	2	High- Low	4	Low	1
# 6	Medium	3	High	2	Medium	4	High	1
#7	Low	2	Low	3	Low	1	Low	4
# 8	Medium	3	High	2	Medium	4	High	1
#9	Medium	1	High	3	Low	2	Low	4
# 10	Low	4	Low	2	Low	3	Medium	1
# 11	Medium	3	Medium	2	Low	4	Medium	1
# 12	Medium	2	High	3	High	1	Medium	4
#13	High	3	High	2	High- Low	4	High- Low	1
# 14	High	2	High	4	High	1	High	3
# 15	High	1	////		High	2	////	
# 16	Medium	1	Medium	3	Medium	2	Medium	4
# 17	Low	1	Medium	3	Medium	2	Medium	4
# 18	Medium	2	Medium	3	Medium	1	Medium	4
# 19	Medium	4	Medium	2	Medium	3	High	1
# 20	Low	4	Medium	2	Low	3	Medium	1
# 21	High	2	High	4	High	1	High	3

Table 6 Participants' anxiety groups across tasks

An example of within-participant variability of state anxiety is that participants' anxiety did not pattern alike in the different tasks (see Table 6). Only seven participants patterned similarly in the four interactions (e.g., participant # 3 and 7 – low anxiety group; participant # 16, 18, and 19 – medium anxiety group; and participant # 14 and 21 – high anxiety group). Table 6 illustrates how the intensity of participants' anxiety, represented by the three categories of anxiety, varied across the tasks. As a result, for example, participant # 4 who experienced medium anxiety for most of one task (e.g., NNS story) was less anxious and in her comfort zone in another (e.g., NS story or NS std).

The within-person variability of anxiety across tasks is strictly linked to the findings that task type (and partially interlocutor type) affected participants' anxiety. The composition of the groups and the number of participants in the three anxiety groups is different across tasks and is summarized in Table 7.

	Low	Medium	High	Low and high
	Anxiety	anxiety	anxiety	anxiety
NS story	7	8	6	0
NNS story	3	8	8	1
NS spot-the-difference	7	7	5	2
NNS spot-the-difference	5	8	6	1

Table 7 Number of participants in low, medium, and high anxiety groups in the four tasks

Although participants seem equally distributed in the anxiety groups across tasks, the low anxiety group is the least populated, especially in the NNS story task. This supports the findings of task and interlocutor effect, with the story task with the proficient NNS peer being more anxiety inducing. The low and high anxiety column on the right includes the four interactions in which two participants' rating did not fall within the criteria set for the operationalization of the groups.

In their general comments four participants suggested that they felt less anxious when they carried out a task type the second time. This was the case in particular for the spot-thedifference task, where they could use similar vocabulary. Participant # 5 said: "I had already gone through it before, so I was more comfortable with the vocabulary." This could suggest that familiarity with the task, and ultimately practice, could alleviate anxiety. Nine participants' state anxiety decreased from the first to the forth task (see Table 6), however, it was not the case for other participants for whom intervening factors such different interlocutors had a higher influence on increasing anxiety.

By examining the percentage of how much (levels) and how often (number of clicks) participants felt anxious during each interaction, it was possible to find patterns of high, medium, and low anxiety among participants. Figures 7, 8, and 9 show the dynamic rating of anxiety of three participants in the high, medium, and low anxiety group respectively in the same task type (NS std). In figure 7 the participant's state anxiety frequently fluctuated, however, 66% or more of her clicks were on anxiety levels from 1 to 5 (High anxiety). Also participant #17's anxiety (in figure 8) fluctuated, however at least 66% of her clicks were on anxiety levels 1 and 2. Finally, in figure 9 at least 66% of the participant's clicks were on levels 2 to -5, signaling in general low anxiety or comfort zone levels.



Figure 7. Example of idiodynamic rating of a high anxiety participant (# 14 NS std)



Figure 8. Example of idiodynamic rating of a medium anxiety participant (# 17 NS std).



Figure 9. Example of idiodynamic rating of a low anxiety participant (# 7 NS std).**4.1.3 Reasons for variation in anxiety**

Variation in participants' intensity of anxiety in the different tasks shows that state anxiety is a moving-target, which seems to be affected by some task and interlocutor's characteristics as well as other interacting factors, which need to be further explored. The stimulated interviews provided additional information, regarding, in particular, the reasons why participants' anxiety raised and fell during the interactions.

The coding process in NVivo of participants' explanations for the spikes and dips in the graphs yielded 18 reasons for anxiety increase and nine for its decrease. The coding included only reasons provided in correspondence with the spikes and the dips. Explanations provided as general comments during and at the end of the interview were coded separately, and were excluded from this coding process, as they did not refer to a specific event in the video and the graph. Participants could not provide explanations to every single spike and dip (i.e., every second of the interaction) in the graphs, because they could not remember or were not able to

explain the reasons for some fluctuations, and also because a series of repeated spikes (or dips) were recalled under a single reason. However, in some cases a variation in anxiety (a spike or a dip) was due to a conjunction of reasons, and was coded with more than one code.

The reasons for anxiety increase were not only more varied (18 reasons), but also more frequent (767) than the reasons for its decrease (9 reasons and 100 occurrences). A possible explanation for the relative smaller number of reasons for anxiety decrease and their occurrences could be traced back to subjective use and interpretation of the scale in the software. Although everybody received the same written instructions on how to use the scale, some participants never clicked the levels below zero. One possible explanation could be that it is easier to conceptualize the presence and increase of anxiety than its absence (levels below zero). Another possibility is that these participants never felt comfortable in using and interacting in the L2 during the interactions. These participants only recalled reasons for anxiety increase.

4.1.3.1 Reasons for increase in anxiety

Table 8 summarizes the reasons for increase in anxiety and at which anxiety level they were rated in the 82 task-based interactions. Reasons are numbered in terms of their frequency and they are grouped according to what language learning area (form, meaning, or interaction) they pertain to.

In general, participants felt anxious for reasons related to their in-the-moment L2 performance in the interactions, except for "situational anxiety" (reason 13), which refers to the anxiety caused by being filmed or simply doing a new task in Italian. The excerpts in Example 13 illustrate this reason.

Reasons for increase in anxiety	Level 5	Level 4	Level 3	Level 2	Level 1	Total
Form						
1. I didn't know the word or verb.	63	65	58	56	35	277
2. I couldn't remember.	37	23	17	28	16	121
3. I wasn't sure if it was correct.	12	20	19	15	13	79
7. I had to pause.	5	5	6	6	2	24
10. I didn't know how to conjugate the	3	5	6	4	1	19
verb.						
Content	12	16	18	15	17	78
6. I didn't know what to say.	9	5	8	5	2	29
9. I didn't know what it meant.	1	3	6	6	3	19
Interaction						
4. I realized I made a mistake.						
5. Negative emotions.	12	13	8	5	3	41
8. I didn't understand the interlocutor.	9	7	3	1	1	21
11. Interlocutor didn't understand.	2	4	2	5	1	14
12. I realized I was using words in	3	5	0	2	1	11
another language.						
14. I misunderstood and I was confused.	2	1	2	2	1	8
15. I got corrected.	2	2	1	2	1	8
16. I thought the interlocutor did not	1	1	1	0	1	4
understand.						
17. I asked the interlocutor for the word I	2	0	1	0	0	3
needed.						
18. I wasn't sure what the question was.	0	0	2	0	0	2
Other reasons						
13. Situational anxiety.	2	1	2	0	4	9
Total	177	176	160	152	102	767

Table 8 Reasons for anxiety increase rated at the different anxiety levels

Example 13: Situational anxiety

<u>Participant # 16</u>: "I was constantly a little bit anxious, you know, I'm never fully calm because I'm being filmed... 'cause... I don't know... that feeling like you should know this stuff. And, like, I do know this stuff, like, if you'd have given it to me and I had to write about it, I could write like a thousand times better than I could say it very quickly. But then there's, like, the whole thing of being filmed."

<u>Participant # 9</u>: "It was the first experiment and not knowing what was to come next add to a certain level of anxiety. It's the same thing with conversation, you don't know where conversation is going to go."

The other reasons relate more directly to speaking and interacting in the L2, and in particular to cognitive processes and interactional dynamics. Six reasons pertain to participants' issues in L2 cognitive processes such as retrieving vocabulary and using their explicit knowledge of the grammar. More specifically, reasons 1, 2, 3, 10 concern the form (e.g., "I didn't know the word"; I didn't know how to conjugate the verb"; I wasn't sure if it was correct"), reason 7 the processing time ("I had to pause"), and reasons 6 and 9 relate to understanding and expressing the content (e.g., "I didn't know what to say"). Ten reasons concern interactional dynamics and participants' reactions to their interlocutor's utterances (reasons 4, 5, 8, 11, 12, 14, 15, 16, 17, 18). Participants reported feeling anxious more often because of issues related to formulating what they wanted to say in Italian (520 occurrences, reasons.1, 2, 3, 7, 10) than for reasons related to the interaction with the interlocutors (e.g., 112 occurrences, reasons 4, 5, 8, 11, 12, 14, 15, 16, 17, 15, 16, 18).

The three most frequent reasons for participants' anxiety increase concern their struggle in finding a way (or the correct way) to convey the meaning, when the form is either unavailable ("I didn't know the word"; "I couldn't remember") or being processed ("I wasn't sure if it was correct"; "I had to pause"). The fourth and fifth most frequent reasons concern participants' reactions to a negative evidence, which made them realized they had made a mistake (reason 4) or caused a negative self-evaluation of participants' on-going performance (reason 5). The excerpts in Example 14 illustrate from 1 to 5, the five most frequent reasons.

Example 14: The five most frequent reasons for anxiety increase.

Reason 1: I did not know the word or verb

"Especially this part I was trying to figure out how to say 'naked' and I could not figure that out for the life of me! And I'm just like... yeah, just trying to figure out the word. I can't think of the word so, without clothes, *senza vestiti*, like I said something like that. I got away with that because he looked at the picture and 'oh no clothes', he could figure it out. The problem I have with speaking Italian is I know what I wanna say, but I never know how to say it. And that's the part that is just killing me every time." (Participant # 17, NNS story, anxiety level 4)

Reason 2: I could not remember

I was trying to think of the word for bottle. It was a bottle of wine, and I couldn't think of the word *bottiglia* and I kept saying 'like a cup of wine' but it wasn't a cup and I was trying to explain that but I don't know.... it was frustrating! It was such an obvious word, bottle, I learned that the first day of Italian class! I couldn't come up with it, and couldn't think of another way to describe it, because I don't know how to say container or anything like that, so I kept saying 'not a bicchiere, but bicchiere'. And he was just looking at me." (Participant # 19, NNS std, anxiety level 5)

Reason 3: I was not sure if it was correct

"Also at first I didn't know how to say hospital so I kind of said '*ospitale*' and I pronounced it wrong and I knew I was pronouncing it wrong, but he corrected me. Before I was saying it I was definitely unsure, but after he corrected me... It's kind of a relief like it's like 'oh yeah' I kind of realized it. It's me not knowing exactly the first time how to say it." (Participant # 4, NNS story, anxiety level 3)

Reason 4: I realized I made a mistake

"Because *dietro-davanti* [in front-behind]. I know like behind, in front, on top...all those are like... I always get them mixed up in the moment, if someone said it to me, I'm like 'Oh I know what you mean', but when I have to think of it I'm like 'Wait! Which one is it?' I realized it was wrong and I felt anxious." (Participant # 12, NS std, anxiety level 4)

Reason 5: Negative emotions

"...*divino*...when he corrected me I realized that it was *divano* [couch] and I felt like stupid." (Participant # 11, NNS std, anxiety level 2)

The excerpts show cases in which participants had a vivid memory of their thought process and the anxiety it created at some particular moments during the interactions. They show how not knowing (e.g., participant # 17) or remembering (e.g., participants # 19 and 4) a word, or the correct word (e.g., participants # 12 and 11), can cause high anxiety, regardless of the successful (e.g., participant # 17: "He figured it out") or unsuccessful (e.g., participant # 19: "he was just looking at me") outcomes of the interactional move.

It is interesting to note that the same reason can cause anxiety at different levels, which suggests that a reason may be anxiety inducing in and of itself, but it also works in conjunction with other factors and has different impact and outcomes depending on participants' own emotional response. For example, when participants realized in real time that they had made a mistake (reason 4), this could cause their anxiety to rise by one or five levels. Excerpts in example 15 show some interactional exchanges and the related participants' comments in the recall interview on how realizing they made a mistake caused anxiety at level 1, 3, and 4 respectively.

Example 15: Instances of different anxiety levels provoked by realizing a mistake. Excerpt 1

G: *E poi ti ha metto qualche crema sulla faccia*, [And then you have put (present) cream *non certo...forse il gelato non so..* on the face...not sure...maybe ice-

cream, I don't know]

NS: Ok, ho trovato. Allora mi sono messa della [Ok, I found it. Then I put (past tense) crema...un gelato, un vasetto di yogurt forse.. some cream on...ice-cream, yogurt che cos'è? maybe...what's that?]
From the recall interview: "I was 'Oops! Messo [past participle] not metto [present]'." (Participant # 10, NS story, level 1)
Excerpt 2
B: E dopo sei..mettere ..gelato..il gelato da il suo, [And after you are put (infinitive) la sua faccia ...ice-cream... from your, your face]

NS: Quindi ..messo[So...put (past participle)]B: Yeah... hai messo[Yeah, you put (past tense)]

From the recall interview: "This is because of '*messo*'." (Participant # 5, NS story, level 3)

Excerpt 3

R: Sì. Uomoehmsi mettono ti ha	[Yes. Manehmself put (present)
metto in	no he has put (present) you in]
L: Messo	[Put (past participle)]
R: Messo sì. Messo in un letto	[Put (past participle), yes, put in a
	bed]

From the recall interview: "I was just 'Oh gosh', I'm so bad with the irregulars." (Participant # 15, NS story, level 4)

In the three excerpts, participants realized they had made a mistake after receiving corrective feedback (recasts) on their erroneous use of the irregular form of the Italian past participle of the verb 'to put'. This realization caused different reactions in the three excerpts. While for participant # 7 (excerpt 1) realizing the error made his anxiety level rise by one level, in excerpt 2 the same realization from a more overt correction caused anxiety to increase to level 3. In excerpt 3, anxiety increased to level 4 when, after a recast, participant #15 realized she had made a mistake, but also negatively self-evaluated her general ability to use and her knowledge of irregular past verbs in Italian ("I'm so bad with irregulars"). In these three cases, probably both the degree of overtness of the corrective feedback and the participants' own attitude and experience with the structure targeted in the correction interacted with participants' on-going ease or difficulty in expressing the meaning, and produced different outcomes in terms of intensity of anxiety.

4.1.3.2 Reasons for decrease in anxiety

Interestingly, the reasons participants provided for their anxiety decrease are the reverse of the reasons for its increase (see Table 9).

Reasons for decrease	Level -5	Level -4	Level -3	Level -2	Level -1	Level 0	Level 1	Level 2	Total
Form									
1. I knew how to say what I	0	3	9	6	14	0	3	2	37
wanted to say.									
Interaction									
2. Interlocutor said the	1	2	1	3	2	1	2	3	15
word I was looking for.									
3. Interlocutor could	0	2	3	5	2	1	1	0	14
understand what I was									
saying.									
4. I could understand the	0	2	4	1	3	2	0	1	13
interlocutor.									
5. Interlocutor was	0	0	2	0	2	2	0	1	7
speaking and I didn't have									
to speak.									
6. I thought that was funny.	0	1	1	1	1	1	0	1	6
7. I knew what I was doing	1	1	1	0	0	0	0	0	3
because I had done the									
previous tasks.									
8. Positive emotions.	1	0	0	0	1	0	0	0	2
9. Interlocutor helped to	0	0	0	0	1	0	0	1	2
figure out the situation.									
Total	3	11	21	17	26	7	6	9	100

 Table 9 Reasons for anxiety decrease rated at the different anxiety levels

Participants' anxiety decreased to a comfort zone (below zero) when they felt their process of formulating their thoughts in Italian worked (e.g., reasons 1, 3, 4, 7), when the interlocutor's interactional move helped to move on in the interaction (e.g., reason 9) and when it relieved them of their temporarily interactional impasse (e.g., reasons 2, 5, 6). Further, positive emotions were mentioned as reasons for anxiety decrease to a comfort zone when participants positively evaluated their self-efficacy in the interaction, which is the opposite of the anxiety-inducing role of negative emotions (reason 5 in table 7) created by negative self-evaluations of participants' performance. For example, participant # 13's online positive self-evaluation of the quality of his performance, helped to decrease his anxiety. He stated: "I felt like I said that well, that's why it went down [to level - 3]." The reasons for anxiety decrease cover a wide range of anxiety levels (from -5 to 2), because in some cases knowing how to say what the individual wanted to say, or being told the word one needed to continue the interaction contributed to lower participants' anxiety from a higher level, but did not make participants feel in their comfort zone.

Example 16 shows excerpts of the five most frequent reasons (from 1 to 5) for anxiety decrease.

Example 16: The five most frequent reasons for anxiety decrease.

Reason 1: I knew how to say what I wanted to say

"It went down because I was able to talk. Now the situations are so very different it is easy I guess to think of ways to explain them. Whereas the initial first part was tricky." (Participant # 3, NS story, anxiety level -3)

Reason 2: Interlocutor said the word I was looking for

"I felt good because he helped me out, and now I know the word for it, and now I can say what is near." (Participant # 9, NS std, anxiety level -5)

Reason 3: Interlocutor could understand what I was saying

"I guess I should be nervous because it was a different person, I mean it's like a new whole thing but I guess I was 'You know what? I've already made mistakes." So I'm like 'Who am I trying to impress? No one!' Do you know what I mean? So...yeah! I was 'Never mind.' It was ok, he understood me." (Participant # 14, NNS std, anxiety level -2)

Reason 4: I could understand the interlocutor

"I'm not anxious because I know everything that you're saying and what I'm saying. I feel fine here." (Participant # 7, NS story, anxiety level -3)

Reason 5: Interlocutor was speaking and I didn't have to speak.

"This is when he is speaking and I'm ok." (Participant # 4, NNS story, anxiety level - 3)

The excerpts show that during the interactions participants were less anxious, and sometimes even comfortable, when they felt they were in control of what they were saying and they were understood (e.g., participant # 3 and 14), and when there was cooperation and understanding with the interlocutor (e.g., participant # 9 and 7).

The reasons for anxiety decrease also had different impacts on participants' anxiety or comfort level, with the same reason (e.g., reason 1 "I knew how to say what I wanted to say") making anxiety decrease to different levels (from 2 to -4) for different participants. The excerpts in example 17 illustrate episodes in which knowing how to say what they wanted to say had a different impact on reducing participants' anxiety.

Example 17: Knowing what to say decreases anxiety at different levels.

Excerpt 4

NS: Ce l'hai un orologio?	[Do you have a clock?]
D: Ho un orologio di azzurre.	[I have a clockof blue]
NS: Sì, vicino alla lampada?	[Yes, next to the lamp?]
D: Si .	[Yes.]
From the recall interview: "I knew what a c	lock was and I knew the color blue"
(Participant # 9, NS std, anxiety level - 4)	
Excerpt 5	
K: Poinoi siamo arrivati all'ospedale	[Thenwe arrived at the hospital and
e l'uomo alla porta ci ha detto buonasera	the man at the door said 'Good evening']
NNS: Ok	[Ok]
K: Poi mi hanno portato, ti hanno portato	[Then they brought me, they brought you,
ti ho portato sul porta quando l'uomo che	I brought you at the door, when the man
ha detto buonasera mi sembrava	who said good evening seemed upset]
arrabbiatao	
NNS: Era arrabbiato il signore?	[Was the man upset?]
K: Sì, sì. Poi ehm ti ho messo sul letto	[Yes, yes ehmI put you on the bed]
NNS: Ok	[Ok.]
From the recall interview: "This one might	be because I said all well without pauses at
first, then I started having more troubles. I k	knew I was describing it fast, I conjugated the

verb, so I felt good about it. So I don't have to pause and think about it." (Participant # 7, NS story, anxiety level -3)

Excerpt 6

S: Poi hai dormito in un letto	[Then you slept in a bed]
NNS: Ok	[Ok]

S: *La donna, una donna ..ehm..è qui* [The woman, a woman ehm..is there] NS: *Ok* [Ok]

From the recall interview: "I knew how to say that one, it was exciting" (Participant # 19, NNS story, anxiety level -1)

Excerpt 7

M: Ha aperto ...per vedere ...il cibo.[He opened...to see...the food]A: L'ho fatto io..ho aperto il frigorifero..ok[I did that..I opened the fridge..ok]M: Ehm..bevuto..hai bevuto il ketchup..[Ehm..drank...you drank the ketchup]A: Ok, wow![Ok, wow!]

From the recall interview: "Not too bad because I remembered how to say food, isn't it cibo, cibi? At least I knew for sure that food was that, so I knew something to go to" (Participant # 14, NS story, anxiety level 1)

The excerpts 4 to 7 show instances in which participants recalled feeling relieved because they knew at least a word or two they could use. The same reason could make participant # 9 feel comfortable (anxiety level -4) or make participant # 14 feel less anxious (anxiety level 1). Similarly, using conjugated verbs at a good pace resulted in different level of comfort (participant # 7, level -3, and participant # 19 level -1). These data show that the interpretation of comfort levels, was subjective and contingent on many factors. For some participants who felt they were struggling in the previous interactional moves, being confident in something (e.g., one word) resulted in greater relief and comfort (e.g., participant # 9 and 14), than others who did not encounter the same obstacles in retrieving vocabulary and felt comfort when they could speak at a faster pace (e.g., participant # 7).

4.1.3.3 Comparison of high-anxiety-level episodes in the high and low anxiety group

The qualitative and quantitative data show that participants in the different anxiety groups (high, medium, and low) were anxious for similar reasons. It appears that what differentiates the groups is not the sources of their anxiety, but rather their frequency. Table10 illustrates how often participants in the different anxiety groups reported reasons for anxiety increase or decrease. The number of participants in each group is reported in brackets.

	High	Medium	Low
	anxiety group	anxiety group	anxiety group
Reasons for anxiety increase			
NNS story	87	91	25
	(n = 8)	(n = 8)	(n = 3)
NNS spot-the-difference	49	69	33
	(n = 6)	(n = 8)	(n = 5)
NS story	80	100	74
	(n = 6)	(n = 8)	(n = 7)
NS spot-the-difference	63	62	60
	(n = 5)	(n = 7)	(n = 7)
Reasons for anxiety decrease			
NNS story	3	12	3
	(n = 8)	(n = 8)	(n = 3)
NNS spot-the-difference	4	7	14
	(n = 6)	(n = 8)	(n = 5)
NS story	6	4	19
	(n = 6)	(n = 8)	(n = 7)
NS spot-the-difference	2	4	22
	(n = 5)	(n = 7)	(n = 7)

Table 10 Frequency of reasons for anxiety increase and decrease in the anxiety groups

It is clear, for example, that the participants in the low anxiety groups in the different tasks had a lower frequency of reasons for anxiety increase and a higher frequency of reasons for anxiety

decrease than the medium and high anxiety groups. To further explore where the difference lies between participants who had high and low state anxiety, I examine how occurrences of level-5 anxiety played out in the interactions of participants in the high and low anxiety groups. Table 11 displays the frequency by which participants in the low, medium, and high anxiety groups reported feeling the highest anxiety level (level 5). The number of participants in each group is reported in brackets. Participants in all groups experienced episodes of high anxiety levels, however for those in the low and medium anxiety groups these were rare moments in a general low anxiety or comfortable interaction, while for the high anxiety group these were spikes in a general anxious situation (range 1 to 5). Out of a total of 129 occurrences of level-5 anxiety, I examined the 84 occurrences in the high anxiety group and the 16 in the low anxiety group, taking into consideration the reason that caused high anxiety and the outcome in the interaction.

	High	Medium	Low	Total
	anxiety	anxiety	anxiety	
NNS story	34	11	1	46
	(n = 8)	(n = 8)	(n = 3)	
NNS spot-the-difference	16	5	3	24
	(n = 6)	(n = 8)	(n = 5)	
NS story	18	9	9	36
	(n = 6)	(n = 8)	(n = 7)	
NS spot-the-difference	16	4	3	23
	(n = 5)	(n = 7)	(n = 7)	
Total	84	29	16	129

Table 11 Frequency of level-5 anxiety rating per task type and anxiety group

The 16 cases of level-5 anxiety rated by low-anxiety participants happened when participants did not know the word they wanted to use (9 cases), did not know how to conjugate the verb (2 cases), were not confident about the correctness of their utterance (2 cases), did not understand

the interlocutor (1 case), had negative self-efficacy (1 case), and used words in another language (1 case). In every instance but two, participants could communicate successfully despite the high anxiety, as there was no communication breakdown in the interaction at those points. In general, these participants tried to overcome the problem that caused anxiety, by saying something in Italian that helped the interlocutor understand what they meant. In these cases, they always received feedback in the form of confirmation checks, which provide a more target-like version of the utterance together with the reassurance that the information has been understood and needs to be double-checked. On the contrary, in the two cases in which communication breakdowns occurred, participants could not provide any circumlocution or non-target like version of what they wanted to say, and said the word in English. The excerpts in example 18 illustrate how low anxiety participants dealt with these high anxiety situations.

Example 18: Episodes of level- 5 anxiety in low anxiety participants.

Excerpt 8

R: Ehmla donna all'ospedale	[ehmthe woman at the hospitalI don't			
non so la parolaehmhai provato	know the wordehmyou tried to kiss her			
a baciarla, ma nonnon la piace.	but she did not did not like it]			
NS: Ah, ok. Quindi cosa è successo dopo?	[Ah, ok. So what happened next?]			
From the recall interview: "I just couldn't figure that outhow to say 'nurse' I just didn't				
know exactly the words." (Participant # 17, NS story, spike 18, level 5)				

Excerpt 9

B: Cosa prossima, ti sei ubriacato,	[The next thing, you got drunk, then you
poi sei cadutoehm	fellehm]
NNS: giù	[down]

B: *Caduto giù. E a quel punto ti ho trovato.* [fell down. And at that point I found you.] From the recall interview: "I couldn't think of the word you fell down the stairs, I can't remember the word for stairs, I think it's *scatole*? See it's the three of those, *scaffale*, *scatole*, *scale*! (Participant # 3, NNS story, spike 4, level 5)

Excerpt 10

Bu: Seito turn onaccendere?	[You'reto turn onis turn on?]
NS: <i>Uh uh</i> (nodding)	
Bu: Hai accenduto ilfaucet.	[You turned (wrong regular past participle)
	on the faucet]
NS: Che cos'è il faucet?	[What's a faucet?]
Bu: Yeah, non	[Yeah, I don't]

From the recall interview: "I felt anxious because of 'turn on'...and 'faucet', I just couldn't think of the entire sentence... and then I just couldn't think what else to say after that." (Participant # 5, NS story, spike 11, level 5)

In excerpts 8 and 9 there is no evident communication problem, and the reasons for anxiety at the highest level are not visible. In excerpt 8, participant # 17 recalled feeling anxious because she wanted to say "nurse", but could not think of that word and said "the woman at the hospital" instead. In excerpt 9, participant # 3 was looking for the word "stairs". The communication was not disrupted and the interlocutor could not notice that the participant was looking for a more elaborate way to complete the sentence. In both cases, participants managed to convey the correct meaning, and what they said was sufficient for the interlocutor to understand. On the contrary, excerpt 10 illustrates the case in which little or no attempt was made to convey the meaning in Italian. After trying to conjugate the verb 'turn on' he had asked the translation for,

participant #5 decided to complete the sentence in English, but the NS did not understand the English word and a clarification request followed.

The 84 occurrences of level-5 anxiety experienced by the high anxiety groups were caused by similar reasons. Participants did not know (59 cases) or did not remember (8 cases) the Italian word they wanted to use, they did not understand the interlocutor or what was going on in that phase of the task (9 cases), and used words in another language and negatively self-evaluated their performance (8 cases). Participants in high-anxiety groups also tried to convey the meaning using different strategies, but there were relatively more instances of incomplete sentences followed by either a question from the interlocutor who tried to understand the situation or, sometimes, by participants' request for help. The higher number of relatively unsuccessful exchanges could be due to the fact that there were simply more occurrences of level 5 anxiety in high-anxiety groups. However, another possible explanation can also lie in the participants' limited ability to use their resources and strategies in real time when they encounter a language problem that raises their anxiety. Excerpts in Example 19 illustrate cases of high-anxiety due to not knowing the word participants wanted to use.

Example 19: Episodes of level- 5 anxiety in high anxiety participants.

Excerpt 11

M: Dopoehmehm	[Afterehmehm]
NNS: Cosa vuoi dire?	[What are you trying to say?]
M: Ehmcome si dice fall?	[Ehmhow do you say fall?]
NNS: Fall? Oh! Fall!sono caduto	[Fall? Oh! Fall!I fell.]
M: Sono caduto, perchè bevuto troppo.	[I fell because drunk too much.]

From the recall interview: "I was trying to think how to say you're falling, and didn't know how to describe that one at all....and that's why I ..it's like 'I can't think of any word to describe that right now'. I had to ask him 'how do you say it?' " [Participant # 13, NNS story, spike 7, level 5]

Excerpt 12

R: Sì, e subito di bottiglie è unehm	[Sì, and straight of bottles ehmè gialloè
un ehmè gialloè un	isehmehm. it's a yellowit's a]
L: Sotto le bottiglie?	[Under the bottles?]
R: Yeah!	[Yeah!]
L: E' una scatola? Un contenitore?	[Is it a box? A container?]
R:contenitore?	[Container?]
L: Qualcosa io per esempio	[SomethingI for examplethere's
c'è scritto sopra che è un detersivo.	written that it's a detergent.]

From the recall interview: "I was gonna say box, but I didn't even know the word for box." (Participant # 15, NS std, spike 18, level 5)

Excerpt 13

M: Hai usato qualcosa il suo ehm(gesture)	[You used something yourehm(gesture)
hai usato qualcosa per lapelle? No.	you used something for the skin? No]
NNS: Mi sono fatto la barba?	[I shaved?]
M: Ehmno la barbasolo usato	[ehmno shavedonly used something for
qualcosa per la testano la testa	the headno head]
NNS: Mi sono messo qualcosa per la faccia	? [Did I put something on my face?]

M: Faccia (laugh)... [Face (laugh)]

From the recall interview: "I couldn't remember how to say face. Yeah, I confused something...I was trying to say even skin or I was trying to say something. Cause I mean he put something on his face [...] and he was like 'oh am I doing barba?' and I was like 'No, not doing that'... and trying to explain ...'just putting' ... and then I didn't know how to say skin, how do you say skin? Then I said *pelle*, I did! And I got very confused. And then he helped me but I said *pelle*, *testa*, but la *testa* is like not..." (Participant # 14, NNS story, spikes 8 and 9, level 5)

In excerpt 11, participant # 13 was clearly trying to express his thoughts, but could not find a way to say what he wanted to say, and, after the interlocutor offered to help him, he decided to ask for the translation. In excerpt 12, participant # 15 did not know the word she wanted to say (box), but did not try to say it. However, her strategy of locating the object in the picture and saying its color, helped the interlocutor to guess what the object was. Finally, in excerpt 13 participant # 14 did not know the Italian word for face and tried in many different ways, even with gestures, to describe the picture. In spite of her efforts, there was a communication breakdown before the interlocutor could understand what she meant.

These examples show that state anxiety during L2 interactions can have similar causes and intensity, and can occur to learners across the different instructional year of study (here 2nd and 3rd year). What differed in the excerpts from the low and the high anxiety groups is the participants' ability to deal with the linguistic problem that caused the anxiety and to cope with the cognitive interference anxiety caused. In sum, the successful or unsuccessful outcome of the exchange, might depend first on the ability to limit interfering self-related thoughts that might arise from the situation, which allow to devote more attentional resources to use strategies in real-time when the necessary words are not available. In particular, in excerpts 8 and 9 the

moment of high anxiety did not disrupt the conversation, because participants did not let the problem emerge, and were able to deal with it with their own resources, finding circumlocutions (participant # 17) or just adjusting to a less-than-perfect explanation (participant # 3). In these cases, high anxiety is the result of learners' comparison of what they know and expect from themselves and their in-the-moment performance, which in their view might not be up to their standards. However, as these episodes were not frequent for low anxiety participants, they did not create self-deprecating thoughts, which could undermine participants' self-image as successful L2 users.

High anxiety participants were more frequently unable to solve their linguistic impasses (e.g., example 18), and experienced communication breakdowns more often. In those cases, the two possible solutions portrayed in the excerpts were the interlocutor's collaboration and willingness to understand (e.g., excerpt 12 and 13) and the participant's request for help (e.g., excerpt 11). It is possible that self- related thoughts interfered with high anxiety participants' cognitive processes and made them less able to use strategies to go around the problem they encountered. This is a viable explanation, when considering participants' comments in excerpts 11, 12, and 13. Participant # 13 (excerpt 11) could not think of any word and "had to ask" the interlocutor. This sentence could be interpreted as a negative judgment about his self-efficacy. Further, participant # 15 (excerpt 12) said that she did not "even" know the word for box, implying a negative evaluation on her performance. Finally, participant # 14 underlined that she was confused and the interlocutor helped her, but only after she had gone through many unsuccessful trials, which again undermined her self-efficacy. These examples suggest that the higher frequency of situations that arose participants' anxiety might have created a cycle in which anxiety is both the effect and the cause. As suggested by Eysenck (1979), participants who frequently encountered specific situations (e.g., did not know or remember a word) that caused their anxiety to raise, might have had to deal with divided attentional resources (self- and task related), which might have affected their ability to cope in real time with the actual problem, undermining their confidence, and creating negative self-evaluations. In the following section, I examine the role of participants' beliefs, goals, and expectations in increasing or decreasing anxiety in similar situations.

4.1.3.4 State anxiety variations and personal expectations

So far state anxiety has emerged as an unpredictable phenomenon, which seems common across learner participants, who at the same time differ in their perception of and reactions to anxiety-inducing factors. As mentioned, these differences are the result of an interplay of contextual and individual factors. To shed light on the role of participants' goals and expectations in the interpretation of and reaction to anxiety-inducing situations, I analyzed participants' general comments to understand what their expectations for the interactions were.

Even though no specific question was asked on expectations, all participants, except two (participants # 17 and 20), expanded on the questions asked, and provided hints about their expectations. Six participants (# 10, 12, 15, 16, 18, and 19) with different levels of state anxiety said that they 'should know' a particular vocabulary item or a grammatical feature, and forgetting it or making mistakes made them anxious. The repeated use of the modal verb *should* indicates that these participants held themselves accountable for the language instruction they received. Failure to use flawlessly the language they learned was, thus, a source of anxiety, because they could not portray themselves as the successful L2 communicators they thought they were. One example is participant # 16 (excerpt 19) who said: "I couldn't say what I wanted to say even though I knew that I knew how to say it". Similarly, other six participants (#1, 2, 3, 4,

11, and 14) talked about the standards they hold to themselves as FL learners and speakers. In general, making mistakes, having to pause, and the perception they were not 'flowing', were considered instances of underperformance and therefore a source of embarrassment, disappointment, and ultimately anxiety. Participants' expectations about their language performance in the interactions are exemplified in the excerpts in example 20.

Example 20: Participants' expectations about their FL performance.

Excerpt 14

"When I got back from Italy I thought I was so good, and then I realized how much is gone. [...] I hold myself to high standards and I want to speak well. When I forget simple things, it's just like I don't know..." (Participant # 11, general comments)

Excerpt 15

"I don't think it has to do with the person talking. It's kind of self-inflicted. I want to take it seriously. [...] The anxiety for me is more how I am doing compared to what I know and I studied, I guess...to sum it up." (Participant # 3, general comments)

Excerpt 16

"Probably I put a little more pressure on myself. [...] When I started [the experiment] I felt I had to say everything kind of perfectly. [...] I felt I was trying to do more for this [experiment] to see how far I've come like...speaking." (Participant # 2, general comments)

Excerpt 17

"I think [...] 'what if I say something I'm not supposed to say that's totally wrong?"...the pressure to have to be right." (Participant # 4, general comments)

Excerpt 18

"I think at this stage I should be doing everything correct." (Participant # 15, general comments)

Excerpt 19

"You guys didn't make me anxious. It was more me being anxious because I couldn't say what I wanted to say even though I knew that I knew how to say it." (Participant # 16, general comments)

Excerpt 20

"I like to be a perfectionist, so I mean, I get disappointed. [...] I guess I should be nervous because it was a different person, I mean it's like a new whole thing, but I guess I was 'you know what? I've already made mistakes', so I'm like 'who am I trying to impress? No one!' you know what I mean? So yeah...I don't know I guess I was 'never mind.' It was ok, he understood me." (Participant # 14, stimulated interview and general comments)

Some commonalities emerged from the excerpts. In general, participants took the experimental interactions seriously, and as an opportunity to test and showcase their L2 knowledge and abilities. As argued by Spielmann and Radnofsky (2001), L2 learners need and try "to reinvent themselves successfully in the target language" (p. 273). In the current study, learners seemed to expect from themselves the ability to communicate, understand and be
understood, to speak in a flowing manner, and not make mistakes with structures and words they felt they knew at one point.

As opposed to the classroom setting, in which participants may perceive the instructor and the classmates as judges of their performance, when confronted with familiar structures and activities in the experimental setting, participants can become their own judges, and compare their performance to an ideal image of themselves as L2 speakers (cf. Dörnyei, 2005) and their beliefs of what language learning is about. This is clear when participants stated that their anxiety was 'self-inflicted' (excerpts 15 and 19). Participants held themselves to high standards (excerpt 14) and felt the 'pressure to be right' and say 'everything correct' (excerpts 17 and 18).

In the current study, learners seem to carry to the new interactional context (the experimental session) the classroom dynamics they experienced. The pressure to be correct and avoid errors and pausing is self-imposed. These ideas can be due to their beliefs of what a good language learner and user does, resulting from the instructional approaches they experienced. Regarding how classroom dynamics inform participants' beliefs and behaviors, participant # 15 said: "[In class] you're kind of put on the spot. If you don't say it right the first time they correct you or, you know, they move on to someone else if you can't say it." Outside the classroom, these dynamics can be internalized by learners who appear to develop the expectation of having to be correct and fluent. Participants' expectations of their own performance compared to their own abilities, interacted with the other factors at play (e.g., interlocutor's characteristics, task demand, and personality traits), and played an important role in creating anxiety even in low-stakes and non-assessed activities such as the experimental tasks. Although the expectations-reality clash can be a source of anxiety, the new context can in turn influence and change participants' expectations. In other words, the development of the interaction can make

participants modify their expectations of and goals for that particular task. For example, in excerpt 20, participant # 14 who stated she was a perfectionist and wanted to speak flawlessly with no grammatical errors, adapted her instruction-driven expectations to be correct to the new context, making her goals more achievable (i.e., to communicate and be understood). She decided that in the new setting her main goal should not be to impress the interlocutor (an expertlike figure) with her grammatical accuracy, but to get her message across, even imperfectly. Another participant (# 2) seemed to have adapted his initial expectations to say everything perfectly ("I felt I had to say everything kind of perfectly") to a more reachable goal ("After doing it with him, I kind of like get the nerves out of the way of kind of saying everything perfectly [...] I kind of felt a little...slightly more confident."). These changes of expectations and goals contributed to reduce participants' anxiety and to transform its debilitative tension to help them cope with the challenge of communicating in the new context. However, this was not the case for all participants, as for the majority making mistakes remained one of the main sources of anxiety. This is summarized by participant #1 who said: "Even if I speak to someone in 101, I'd probably feel anxious, because even if they don't know I'm wrong, I know that I might be wrong, so it [anxiety] definitely comes from me."

In sum, the quantitative and qualitative analyses suggest that variations in state anxiety may depend on the co-occurrence and interaction of many factors, such as the type of task and the interlocutor's perceived proficiency level (see section 4.1.1), participants' cognitive processes when formulating their thoughts in the L2, participants' reactions to interactional moves (see section 4.1.3), and participants' expectations (see section 4.1.3.4). Each of these factors seems to have played a role in increasing or decreasing participants' anxiety, but their impact differed in magnitude and outcomes depending on the co-occurrence of the factors. In

general, the picture story task, which required more complex reasoning and in which participants were held accountable of conveying all information, was more anxiety inducing than the spotthe-difference task, in which both parts had some information. Interacting with a NS and a NNS is anxiety inducing, but, at the same time, it can help to alleviate possible temporary impasses with the L2 by means of negotiation for meaning (see section 4.1.3). However, the higher proficiency of the NNS peer interlocutor can be a source of anxiety and trigger comparison mechanisms between peers and self-consciousness.

For the participants, feeling anxious seemed to be a constant in the process of speaking the L2 and interacting with a proficient L2 speaker, and the reasons for being anxious were also common across participants in the different anxiety groups. Nevertheless, how often and how much they felt anxious varied greatly. The comparison of how participants in high and low anxiety groups dealt with level-5 anxiety situations let a further difference emerged. Participants in the low anxiety groups for each task seemed to be more able to deal in real time with the reason causing their anxiety, and because they often had strategies, communication was less likely to be disrupted. On the contrary, participants in high anxiety groups experienced more communication breakdowns, as they could not successfully solve in real time the temporary linguistic impasse they encountered, and had to rely more often on the collaboration of their interlocutors.

Finally, participants' high expectations for the interactions and their low-tolerance to error-making unveiled the possibility that anxiety can be 'self-inflicted' by the clash between expectations and the real situation. When participants adopt their classroom's goals for outsideclassroom interactions, the 'pressure of being right' is too high, and becomes debilitating for the

communication. On the other hand, participants who were able to adapt their goals and expectations to the new communicative situation, felt less anxious.

4.2 Research question 2: Relationship between state and trait anxiety

The survey (8-item language anxiety questionnaire, 3-item communication affect scale with NSs, and 3-item communication affect scale with NNSs) and the idiodynamic rating tapped into two dimensions of FLA: the general anxiety towards L2 learning and speaking, and its development in real time when using the L2. As shown in Figure 10, the scores of the questionnaires followed similar patterns. In general, when learners (x-axis) felt anxious when speaking Italian in their Italian classroom (language anxiety questionnaire), they also felt anxious when speaking Italian outside the classroom with native (CAS 1) and nonnative speakers (CAS 2). However, it is important to note that CAS 1 and CAS 2 were developed in studies focusing on ESL learners or learners on a study abroad (e.g., Hardison, 2014), whose experience in speaking with NS and NNS was more extensive. The participants in the current study were in a foreign language context, and only some of them had participated in a study abroad. Their experience in speaking with Italian NSs might therefore have been limited. Similarly, participants might not have had many opportunities to speak Italian with NNSs outside the classroom. For these reasons, it is possible that their self-report on affect when speaking with NSs and NNSs might not accurately reflect their experiences (their general disposition), but rather imagined or hypothetical situations. The Cronbach Alpha coefficient is .837 for the language anxiety questionnaire, .961 for CAS 1 (communication affect with NSs) and .808 for CAS 2 (communication affect with NNSs), showing high reliability for the three scales.



Figure 10. Mean scores of the Language Anxiety Questionnaire, CAS1 and CAS 2.

I ran the Kendall's Tau correlation test to investigate the relationship between the survey scores and the dynamic rating scores for each task (see Table 12).

Task	Language anxiety questionnaire	р	CAS 1	р	CAS 2	р
NS story	.058	.716	.147	.362	.090	.583
NS spot-the-difference	.087	.586	.117	.466	.079	.626
NNS story	.159	.318	.132	.412	.124	.446
NNS spot-the-difference	.106	.506	.156	.331	.119	.465

Table 12 Correlations between Language Anxiety Questionnaire, CAS and dynamic rating

The analyses did not show any significant correlation between the measures of trait and state anxiety. This means that a higher trait anxiety score did not necessary correspond to higher mean of state anxiety dynamic ratings and vice-versa.

These seemingly counterintuitive findings point to the difference between the two constructs. Participants' general L2 anxiety could be considered their baseline anxiety when they use the FL, as the survey items cover the usual situations learners encounter when using the L2 inside and outside the classroom (e.g., concerns about grammatical accuracy, speaking in front of the classmates, being corrected, and self-efficacy). If trait FLA represents participants' starting point, a change in trait anxiety (e.g., a higher or lower starting point), means that participants in general have a different comfort level in the L2, but not necessary that they will also feel more anxious in the specific situations during the interactions. MacIntyre (2007) argues that "the study of state anxiety is made more complex by learners' active attempts to cope with and compensate for the effects of anxiety, and by the relatively automatic process of habituation that lessens the emotional arousal as time goes by." (p. 565).

Findings in the current study (see RQ1) show that participants felt anxious for similar reasons, but the anxiety arousal was contingent on the interplay of contextual and individual factors (task type, relationship with the interlocutor, availability of language resources, and personal interpretations of and reaction to interactional moves). For example, participant #9 scored 6.3 in the language anxiety questionnaire, which is more than one standard deviation above the group mean (M =4.1, SD = 1.2). He also scored 6.3 in the reverse CAS 1, almost one standard deviation above the group mean (M = 4.7, SD = 1.8), and 4.3 in CAS 2, more than a standard deviation above the group mean (M = 3.5, SD = 1.3). He could therefore be considered an anxious foreign language learner, with high trait anxiety, and would be expected to have high state anxiety too. However, when considering the percentage of time he experienced high, medium, and low state anxiety during the tasks he can be categorized as medium anxiety in the NS story, high anxiety in the NNS story, and low anxiety in the spot-the-difference with the native and nonnative speakers (see Table 5). This is a clear example of how a learner can generally be anxious in class, but his FLA can decrease depending on task and interlocutors' characteristics, and his own goals. Trait and state anxiety then differ, as they involve different dynamics in different timeframe, and need different measuring methods. This is in line with MacIntyre (2007), who argued that "the relationships among variables under study in SLA may change substantially when concepts are defined at different levels of abstraction (e.g., state, situation-specific, or trait levels)." (p. 565). In other words, although a relationship between trait and state anxiety is likely to exist, it is not a linear one, and is not represented at a correlational level. Because of its relatively more stable nature, trait anxiety can be assessed numerically as a count variable, while the data in the current study (RQ 1) show that the nature of state anxiety is

its variability, and fluctuations are lost when anxiety is defined only at the level of personality trait.

Further, the construct of trait anxiety is also not monolithic. As mentioned, both the language anxiety questionnaire and the two CASs relate to situations similar to what participants experienced during the experiment. In particular, the language anxiety questionnaire is about participants' level of comfort (or lack thereof) when speaking the L2 in front of the classmates, when using grammar rules, making mistakes, and being corrected in the classroom. It also includes statements regarding peers' comparisons, judgments, and confidence. The two CASs are about participants' confidence, comfort, and self-efficacy when using the L2 with native and nonnative speakers in general. Participants' responses to the questionnaires were contingent on their current classroom experiences and may not correspond to their general approach to the FL, but to their most current one. On this regard, in excerpt 21 participant # 15 compared her previous Italian teacher to her current one, and their different teaching orientations changed her attitude and behavior toward speaking the L2.

Excerpt 21

"I used to speak more and be more confident about it. But for some reasons, I've been having problems with the tenses [...] I haven't been speaking in class lately, because every time I do it's wrong, which is the point of learning, I know, but it gives me anxiety. The prof. spends a lot of time nitpicking on like the grammar, and, you know, whether it's masculine or feminine, singular or plural and it kind of limits how much I can talk, if I can't get it out there."

This comment suggests that even the stability of trait anxiety can be challenged, when the factors that contribute to create it (e.g., teachers' beliefs and methods) change. In this case, a different teaching approach increased her general FLA, but in other cases, a collaborative classroom atmosphere could contribute to its decrease.

In their general comments, participants expressed two opposite views about how their FLA during the experiment related to their general FLA in class. Eight participants said that the classroom setting was more anxiety inducing than the experiment's one, and reported feeling more anxious in class because their performance is graded and they are pressured to be correct all the time. On this regard, participant # 15 said she pulled back from speaking in class because her teacher's focus on accuracy made her a less confident speaker. She said: "A lot of times I feel she knows what I'm trying to say. I wanted that to be good enough, just get the idea and encourage me to speak, rather than having everything correct! But I think at this stage I should be doing everything correct, so I don't know." Further, the presence of the classmates contributes to making the classroom an anxiety-inducing setting. Participant #8 said: "When the professor asks me and the whole class is around, I think I make more mistakes than if I was trying to communicate with him". Along this line, participant # 11 said: "In front of my classmates, I become a little anxious because you know people are watching you and your Italian is being put to the test."

However, the very presence of classmates, when they are perceived at the same (or at a lower) proficiency level, made other eight learners feel more comfortable in the classroom than in the experimental tasks. One participant (# 13) said: "If I mess up in the Italian class, like, the class won't even know, but if I mess up with you guys [NS and NNS] you're gonna know." The same idea is expressed by another participant (# 3) who said: "In class it's a lot easier because in

class no one knows ... I mean, no one knows as much. Everyone is kind on the same boat." For the latter group of participants the classroom setting and the classmates seem like a protected environment, which makes them feel they can speak and learn, while the one-on-one experimental setting and the perceived interlocutors' higher proficiency made them more anxious.

These data show that some aspects of participants' trait anxiety were actually present and played a role during the experimental interactions, because previous experiences shape our approach and attitude toward the new situations. On this regard, Epstein (1993, p. 323) cited in MacIntyre and Gregersen (2012, p. 112), suggests that when "an event occurs, the experiential system scans its memory banks for related events, and vibes from the past events are produced that influence conscious thoughts and behavior." When a learner experiences repeated episodes of state anxiety in a language context, he/she might associate anxiety with language learning, which becomes the source to which anxiety is attributed (MacIntyre & Gardner, 1989). However, state anxiety is the result of a combination of factors, whose interplay might vary and have different impacts. During the interactions in the new and different experimental setting the factors at play (e.g., interlocutor's proficiency and familiarity, and one-on-one conversation) contributed to shape participants' in-the-moment reactions to anxiety-inducing situations, which might be different from what they had experienced before in the classroom.

4.3 Research question 3: Relationship between state anxiety, improvement, and feedback.

To address the question whether participants' state anxiety affected their learning from the task-based interactions, I first compared pre and posttest accuracy and fluency scores to see if participants improved. I used the non-parametric Wilcoxon singed-ranks test, because data

Participan	Ac	curacy		Att	empts		Acc	uracy		Atte	empts		Flu	iency	
ts	agı	reement					past	tense							
	Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain
#1	0.0	0.77	0.77	0	13	13	0.55	1.00	0.45	9	8	-1	57.89	36.62	-21.27
# 2	0.0	0.88	0.88	0	8	8	0.50	0.92	0.42	10	12	2	37.4	56.04	18.64
#3	0.8	0.86	0.06	5	7	2	1.00	1.00	0.00	5	7	2	107	106.77	-0.23
#4	0.8	1.00	0.17	6	9	3	0.70	0.90	0.20	7	10	3	93.96	120	26.04
# 5	0.0	0.00	0.00	1	5	4	0.33	0.63	0.30	6	8	2	39.41	92.26	52.85
#6	1.0	1.00	0.00	1	6	5	0.33	0.60	0.27	3	5	2	22.79	24.7	1.91
#7	1.0	0.36	-0.64	1	11	10	0.60	0.91	0.31	5	11	6	83.44	78.4	-5.04
# 8	0.5	0.50	0.00	2	8	6	0.00	0.17	0.17	2	6	4	45.67	69.23	23.56
#9	0.0	0.50	0.50	0	4	4	0.00	0.80	0.80	1	5	4	31.28	50.33	19.05
# 10	1.0	1.00	0.00	1	8	7	0.50	1.00	0.50	4	7	3	68.43	77.68	9.25
# 11	0.0	1.00	1.00	0	5	5	0.70	0.50	-0.20	7	4	-3	53.25	60	6.75
# 12	0.0	0.25	0.25	0	4	4	0.40	0.60	0.20	5	5	0	32.1	33.95	1.85
# 13	1.0	0.00	-1.00	1	9	8	0.00	0.00	0.00	1	2	1	35.29	46	10.71
# 14	0.0	0.88	0.88	0	8	8	0.00	0.00	0.00	1	5	4	24.67	46.38	21.71
# 15	0.0	0.83	0.83	0	6	6	0.50	1.00	0.50	2	6	4	38.41	41.25	2.84
#16	0.0	1.00	1.00	0	8	8	0.50	0.75	0.25	2	4	2	64.99	49.09	-15.9
# 17	0.0	0.71	0.71	0	7	7	0.33	0.33	0.00	3	3	0	68.46	76	7.54
# 18	1.0	0.33	-0.67	1	9	8	0.66	0.40	-0.26	3	5	2	60	86.32	26.32
# 19	0.0	0.86	0.86	0	7	7	0.50	0.67	0.17	4	9	5	48.79	54.96	6.17
# 20	0.0	0.86	0.86	0	7	7	0.00	0.83	0.83	2	6	4	32.45	49.32	16.87
# 21	0.0	0.50	0.50	0	4	4	0.00	0.20	0.20	3	5	2	41.05	61.85	20.8

 Table 13 Pre and posttest scores: accuracy, number of attempts, and fluency

were not normally distributed. The accuracy scores were the ratio of the number of correct attempts to the total attempts to use the target structure (noun-adjective agreement in the picturedescription and past tense in the picture-story task respectively). The number of attempts in the pre and posttest were also included as a measure of learning. Moreover, fluency was calculated for the picture story task as the number of pruned syllables per minute.

Table 13 shows participants' scores and mean differences (gains) for the two tasks in the tests. In general, participants had higher scores in the posttests, showing improvement and thus possibly learning. Fourteen participants improved in the accuracy of noun-adjective agreement, 15 improved in the accuracy of past tense forms, and 17 in the fluency scores. Participants who did not show improvement had either no gain (same scores or ceiling scores in the pre and posttest) or they had a negative score difference. However, everybody, except three cases in the picture-story task, tried to use the target structure more often in the posttest (increased number of attempts).

The comparison of the pre and posttest results with the Wilcoxon signed-rank test revealed that both accuracy and fluency scores in the posttest were significantly higher than in the pretest, with a medium effect sizes (see table 14). The difference in the number of attempts to use the two target structures was also significant, with a higher number of attempts in the posttest. The effect sizes were large. The analysis shows that participants in general were not only more accurate and fluent after the four experimental tasks, but that they also attempted to use the target structures more often. This can be interpreted as a sign of their on-going learning process, because the four task-based interactions provided chances to challenge participants' knowledge and hypotheses on the target structures, practice them, and receive positive and negative evidence. What happened during the interactions could therefore have promoted learning, however at different levels and with different results.

Task	Type of score	Pretest Mdn- posttest Mdn	Z	р	r
Picture description	Accuracy noun- adjective agreement	083	-2.251	.024*	34
	Attempts noun- adjective agreement	0-7	- 4.027	.000*	62
Picture story	Accuracy past tense	.56	-3.096	.002*	47
	Attempts past tense	3-6	-3.348	.001*	51
	Fluency past tense	45.6 - 56	-2.868	.004*	44

Table 14 Wilcoxon signed rank test between pre and posttest scores

All participants received feedback, in the form of negotiation for meaning, recasts, and occasionally, with explicit corrective feedback. To investigate the possible impact of participants' state anxiety on their learning during the interactions and from the feedback, I used the non-parametric Kruskal-Wallis test, which allows researchers to test differences between groups when data violate the assumption of a normal distribution. Because in general participants were not in the same anxiety group across tasks, four tests were performed using the three anxiety groups (high, medium, and low) resulting from each interactional task as the independent variable, and the accuracy gain scores, fluency gain scores, gain in number of attempts, and amount of feedback received for each task as dependent variables. For example, participants' anxiety groups in the NNS and NS spot-the-difference tasks respectively were used as the

independent variables to see if the anxiety experienced had a significant impact on the nounadjective accuracy gain scores, number of attempts gain scores in the picture description tests, and amount of negotiations of meaning (in each the spot-the-difference task). Participants with scores of 80% and above (an arbitrary cut-off score) in both pre and posttest were excluded because there was little room for improvement. Four participants were therefore excluded in the picture-description test, and one in the picture-story test. The analyses (see Table 15) showed that gain scores and the number of negotiations for meaning were not significantly different between participants in the high, medium or low anxiety group.

Task	Dependent variable	χ^2 (df)	р
NS story	Gain scores accuracy past tense	1.283 (2)	.527
	Gain number of attempts	.598 (2)	.742
	Gain fluency	.145 (2)	.930
	Negotiations for meaning + feedback	2.730 (2)	.255
NS spot-the-difference	Gain scores accuracy agreement	.015 (2)	.992
	Gain number of attempts	.925 (2)	.630
	Negotiations for meaning + feedback	.635 (2)	.728
NNS story	Gain scores accuracy past tense	.514 (2)	.773
	Gain number of attempts	1.312 (2)	.519
	Gain fluency	2.130 (2)	.345
	Negotiations for meaning + feedback	2.939 (2)	.230
NNS spot-the-difference	Gain scores accuracy agreement	3.031(2)	.220
	Gain number of attempts	.664 (2)	.718
	Negotiations for meaning + feedback	1.507 (2)	.471

Table 15 Kruskal- Wallis test: Anxiety, accuracy, fluency and amount of feedback

These results suggest that the anxiety episodes participants reported experiencing during the interactions do not seem to have affected significantly the amount of negotiations and feedback they received (i.e., the breakdowns and errors occurred) and their learning from interactions in terms of increased accuracy in the target structures, attempts to use them, and fluency. These results seem to be confirmed when looking at the average gain scores for high, medium, and low anxiety groups in the different tasks (see Table 16) and the amount of feedback participants received in the different groups (see Table 17).

	High anxiety group			Medi	um anxiety	group	Low anxiety group		
	Gain Acc.	Gain Attempt	Gain fluency	Gain Acc.	Gain Attempt	Gain Fluency	Gain Acc.	Gain Attempt	Gain Fluency
NS story	.26	2	8.91	.17	2	8.7	.31	2.9	15.3
NNS story	.26	2	9.79	.18	1.8	11.5	.27	3.7	1.3
NS std	.65	7		.40	7		.28	5.4	
NNS std	.52	6.3		.41	7.7		02	4.6	

Table 16 Mean of gain scores for each anxiety group and task

As explained, participants belonged to different high, medium, or low anxiety groups according to the interactional task, and the far left column in tables 16 identifies the interactional task the grouping refers to. The gain scores in accuracy and number of attempts are similar across anxiety groups, with in general more increase in the number of attempts to use nounadjective agreement in the picture-description test than the past tense in the picture-story test. Although the average fluency gain of the low anxiety group (in the NS story) seems to be much higher compared to the high and medium anxiety groups' gains, the difference was not significant probably because of the large standard deviation (SD = 18) within the low anxiety group. Similarly, (in the NNS story) high and medium anxiety groups had higher fluency gain than the low anxiety groups, but they also had large standard deviations (high anxiety SD = 14.2, medium anxiety SD = 12.8), which can explain why the difference in gain scores was not significant.

Variation within the anxiety groups can be attributed to the fact that each group was identified as such because participants rated certain anxiety levels for 2/3 of the total anxiety they reported experiencing. The range of the anxiety levels can be wide (e.g., from + 2 to -5 for the low anxiety group), and this, together with the anxiety levels experienced in the other third, might have contributed to the large standard deviation within groups.

The data concerning the negotiations for meaning and the corrective feedback provided during the four interactions (see Table 17) also confirm that in general participants in the high, medium, and low anxiety groups received a similar amount of feedback. Recasts were the most frequent feedback type (324), followed by confirmation checks (75), and clarification requests (56).

	High	Medium	Low	Total
	anxiety	anxiety	anxiety	
Recasts	92	133	99	324
Confirmation checks	31	23	21	75
Clarification requests	22	25	9	56
Comprehension checks	3	2	1	6
Explicit corrective feedback	9	6	4	19
Total per group	157	189	134	480

 Table 17 Amount of feedback per anxiety group

The relative low number of clarification requests can be interpreted as a sign that communication was in general successful, as clarification requests are the only negotiation move

that signals communication breakdowns because the interlocutors did not understand. The high number of recasts show the high occurrence of participants' errors, which however did not prevent interlocutors' comprehension, but were implicitly recasted to provide positive and negative evidence. Medium-anxiety participants received the highest amount of feedback (negotiations and corrective feedback), with slightly more recasts and clarification requests, while high-anxiety participants received slightly more confirmation checks and explicit corrective feedback than the others. Nevertheless, these differences between groups were not significant as shown by the statistical analysis.

Although participants' level of anxiety is not associated with the amount of feedback they received, when the feedback data are broken down by task type (see Table 18), it is clear that participants received corrective feedback more frequently from the NS interlocutor. Further, participants also provided accurate responses to the feedback (e.g., correct repetition or reformulation) more often when interacting with the NS. A possible explanation might be found in the higher expertise and confidence of the native speaker in providing feedback, because of her teaching background. The NNS might have provided less feedback because he did not notice there was an error or did not know how to correct it. Moreover, peer correction can be face-threatening and cause embarrassment, so despite his role of expert in the dyad, the NNS peer might have exhibited empathy and chosen not to correct some errors. This is similar to Philp, Walter, and Basturkmen's (2010) study, in which social considerations among classmates affected the attitude to learners' error correction. Embarrassment to be corrected by a peer might also be the reason why with the NNS peer participants acknowledged the reception of the feedback more often than responding to it.

Table 18 Amount of feedback per task type

	Amount of feedback	Accurate responses	Acknowledgment	Inaccurate responses
NS story	157	38	13	9
NS spot-the-difference	128	32	9	0
NNS story	99	8	21	5
NNS spot-the-difference	96	15	7	0

Given the high amount of feedback participants received and the findings that there was a significant difference between participants' pre and posttest accuracy and fluency scores, I ran the Pearson's correlation test between amount of feedback per task and gain scores. The test revealed a significant positive correlation between the amount of feedback participants received in the NS story task and their accuracy gain in the use of the past tense (r = .51, p = .018), and a correlation approaching significance between feedback received in the NS spot-the –difference task and participants' accuracy gain in noun-adjective agreement (r = .40, p = .069). There were no significant correlations with gain scores and the amount of feedback received from the NNS peer.

In sum, the analyses highlighted that participants improved their accuracy in the nounadjective agreement and in the use of the past tense, and showed progress in their language learning process by increasing the number of attempts to use the target structures and their fluency. Although not everybody improved equally, the differences in gain scores did not seem to be associated with the anxiety participants experienced during the interactions. In other words, even though some participants frequently had reasons for feeling anxious and were anxious at high or low levels, they all learned from practicing during the interactions and possibly from the feedback they received.

Further, the amount of feedback they received played a role in their improvement in accuracy, but it did not seem to be associated with the anxiety they experienced. The data showed that feedback, in the form of error correction and negotiations for meaning in case of communication breakdowns, can be one of the many possible sources of anxiety. Realizing a mistake or getting corrected were two specific sources of anxiety indicated by participants (see RQ1). However, feedback occurred regardless of the participants' anxiety levels, and has shown to have had different impacts on the learners, as not everybody improved in all the measurements.

The analyses did not single out state anxiety as a factor that affected learning or disrupted interaction by creating more misunderstandings (i.e., more negotiations for meanings) or more errors (more corrective feedback). In the current study, the role of state anxiety alone seems therefore to be limited and it does not seem to be able to determine the outcome of an interaction, or to significantly affect the learning process during the interactions. These findings suggest that state anxiety arises and is contingent on contextual and individual factors, such as task and interlocutor's characteristics, and learners' expectations. In the following chapter, I discuss the role of the interplay of these factors, to shed light on how high and low anxiety participants reacted differently in similar anxious situations, and the possible different effects of anxiety on their learning.

CHAPTER 5: DISCUSSION

In this chapter, I summarize the findings of the current study in relation to the purpose, which was to observe the development of state anxiety during L2 interactions, and its possible effects on learning. I discuss possible explanations for these findings in relation to those of previous studies. The discussion is organized by research questions.

5.1 Variations in state anxiety during the four tasked-based interactions

The development of state anxiety during the four task-based interactions can be described by considering the following characteristics: 1) patterns of anxiety variation according to its intensity and frequency, 2) the interplay of contextual and individual factors affecting variation, and 3) the specific sources of anxiety variation.

5.1.1 Patterns of anxiety variation

Variation emerged as the key feature of state anxiety, which by definition is temporary and situational. The sequence of spikes and dips in the graphs produced by participants' rating highlighted how anxiety can emerge, increase, and decrease in conjunction with contextual and individual factors. The fluctuations were accounted for by considering the percentage of participants' clicks (i.e., seconds spent) on the different anxiety levels. According to this criterion, the first finding was that 33% of the anxiety participants experienced during the interactions was at levels 1 and 2 (low anxiety). This is in line with FLA research, which highlights that the social and communicative aspect of expressing oneself in a FL is in and of itself anxiety inducing because it is a threat to individuals' self-concept (e.g., Gregersen & Macintyre, 2014; MacIntyre & Gardener, 1989). Given the fact that some anxiety is inherent to L2 learning and use, I observed participants' patterns in state anxiety development by calculating

how often they experienced high and low anxiety, or comfort (ratings below zero) in the remaining time they clicked. Three patterns emerged: high anxiety (at least 66% of ratings on levels 1 to 5), medium anxiety (at least 66% on levels 1 and 2), and low anxiety (at least 66% on levels 2 to -5). Some participants (7) kept the same patterns in the four interactions, experiencing high, medium, or low anxiety for at least 2/3 of their total anxiety rating across tasks; however, the majority of participants exhibited different patterns in the different interactions. A possible familiarity and practice effect could explain the trend of some participants (9), who were in a higher anxiety group in the first task and in a lower anxiety group in the fourth task. As participants repeated the two task types with the NS and NNS interlocutor, familiarity with the task format, and some useful language and strategies they just used or learned in the first two tasks contributed to decrease anxiety for some participants. In Plough and Gass's (1993) study, participants' familiarity with the task resulted in less involvement in the interaction, but ultimately did not make any significant difference in interactional styles, suggesting that intervening variables (in their case age, gender, and ethnicity) might affect its possible benefits. The findings in the current study suggest that one of the possible benefits of task familiarity could be to decrease learners' anxiety. When other variables such as different interlocutor's status, age, gender, and proficiency intervene, carrying out a familiar task, in terms of format, target structures, and necessary strategies, can eliminate a further possible source of anxiety, and result in a decrease in anxiety. This is in line with Koch and Terrell's (1991) study, which found that "increased exposure over time to [...] activities and techniques results in a decrease in anxiety." (p. 123). However, this was not the case for all participants, and possible explanations for the between and within-participant variability in state anxiety can be traced back to the different impact of contextual and individual factors, which I discuss below.

5.1.2 Task type, interlocutor, and individual factors affecting the development of state anxiety

The Wilcoxon signed- rank test highlighted significant task and interlocutor effects. The picture-story task was more anxiety inducing than the spot-the-difference task, and carrying it out with a highly proficient NNS peer significantly aggravated participants' anxiety. Qualitative data from the interviews corroborated these findings, indicating that task characteristics matter in increasing or decreasing anxiety.

Both task types (spot-the –difference and picture story) included information gaps between the interlocutors. However, only when the flow of the interaction was two-ways and both interactants acted as receivers and providers of information, did participants feel supported. On the contrary, in the picture story task, when participants were the major providers of information, the interlocutor's role as a receiver did not afford the same level of support and collaboration.

Although participants were not aware that the two task types targeted different grammar structures, from their comments it is clear that most of them realized that the tasks involved a different kind of language (see example 10 section 4.1.1). The spot-the-difference did not include time sequences, and participants could use the present tense, or no tense or verb at all without compromising the communication. On the contrary, the picture story revolved around a sequence of events, and the conjugation of the past tense (the target structure) resulted in several mistakes and corrective feedback that contributed to increase participants' anxiety. As mentioned, L2 learners are expected to master the use of tenses and aspects at the advanced levels (e.g., ACTFL Guidelines, 2012). Although not reported here, participants were asked to do a self-rating of their proficiency. However, upon closer examination, the participants' self-reported proficiency was

determined not to be accurate. Nonetheless, it appears based on my own experience with rating scales that the proficiency level of the learners in the current study was in general intermediate, and in any case below the advanced level. Participants' proficiency might therefore have played a role in increasing their anxiety, as they felt they were not able to use the past tense "with good control" (ACTFL, 2012, p. 7). Another possible explanation for participants' difference in anxiety in the two task types could be that the spot-the-difference can be perceived as more form-focused than the picture story. If this was the case, the two task types might have been reliant on different types of memory systems: declarative for the spot-the-difference (with a focus on form) and procedural for the picture story task. Higher task complexity contributed to more language breakdowns, negotiations, and thus learning opportunities (e.g., Robinson, 2001). However, the combination of higher task complexity with one-way tasks increases the possibilities of communication breakdowns but decreases the support provided through interaction. When learners are the main information providers in charge of leading the interaction, higher task demands can provoke debilitative anxiety.

Because anxiety arousal divides learners' attention between self- and task-related thoughts (Eysenck, 1979), the greater amount of negotiation and learning opportunities afforded by higher task complexity might not be fully seized by the learners, whose increased anxiety interferes with their ability to cope with the multiple linguistic and interactional challenges. Although task complexity was perceived differently by participants, with a small group of participants finding the spot-the difference more anxiety-inducing, it appears that the perceived greater collaboration afforded by two-way tasks alleviated participants' anxiety, as interlocutors' active involvement made breakdowns and negotiations less threatening.

Interlocutor variables also emerged from the quantitative analysis as a source of anxiety, with participants feeling more anxious when carrying out the picture story with the NNS peer than with the NS. In the interview data nativeness, interlocutor's higher proficiency, and unfamiliarity emerged as anxiety-inducing factors. The main finding from the interview data was that participants' perceptions of the NNS's higher L2 proficiency triggered comparison mechanisms and fear of negative evaluations, which lowered participants' self-esteem, self-efficacy, and increased their worry to make mistakes and lose face (see example 12, section 4.1.1).

In the majority of cases, familiarity with the NNS peer did not alleviate anxiety, while it did with the NS, whose proficiency was perceived as less threating, because it did not trigger any comparison. Further, familiarity with the NS and knowing her teaching background made participants less anxious (e.g., participant # 11 said: "you know more like how to speak to people who it's not their first language"; participant # 8 said "I look at you like an educator"), as they felt they were recognized as learners, and not as non-competent communicators. This allowed them to display a positive image of themselves as language learners, which did not emerge when they compared themselves with a more successful peer who was, in some cases, in their same language class.

Previous findings in interaction research highlighted that interacting with higher proficiency NNS peer interlocutors had positive effects on the interactional features that promote learning (e.g., Plough & Gass, 1993; Varonis & Gass, 1985). In those studies, interlocutor's higher proficiency afforded more input and feedback, and familiarity allowed learners to say when they did not understand, thus promoting negotiations, instead of avoiding them as a possible source of discomfort. However, these studies did not take into consideration the

affective impact of these interlocutor's characteristics. Similarly to what was discussed earlier about task characteristics, the same factors that can promote learning opportunities (here interlocutor's higher proficiency and familiarity), may at the same time interfere with learners' chances to seize them, by generating anxiety which can in turn provoke fear of negative evaluations when making mistakes with unfamiliar more proficient peers.

Interaction research (e.g., Gass and Varonis, 1985; 1986) also found that interlocutor's gender might affect interactional dynamics. It is possible that interlocutors' gender (NNS male and NS female) might have also played a role in increasing participants' anxiety (spikes) or comfort (dips) during the interactions. This aspect was not controlled for in the current study, and interestingly no participant mentioned interlocutors' gender as a source of anxiety in their comments. It is clear that interlocutors' variables can in and of themselves influence the interaction and induce anxiety, but the current study showed that their interplay may have different outcomes according to participants' individual characteristics, which are discussed below.

Participants perceived and interpreted contextual factors (task demands and interlocutors' variables) in relation to their own individual personality and expectations. In particular, interview data revealed that participants' expectations and beliefs informed their stimulus-appraisal process and determined anxiety arousal. As Spielmann and Radnosfky (2001) pointed out, anxiety (*stress*, in their words) is not a "universal effect of inherently stressful event or situations, but [...] the result of interaction (between a situation, the context of its occurrence, and its interpretation by an individual)". (p. 261). In their study dealing with French learners in a 7-week intensive program, the researchers suggest that learners' tension (i.e., debilitative or facilitative anxiety) was the result of the interaction between individual expectations and *a priori* beliefs

about learning, and the perceived reality of a situation. They concluded that participants' overall perception of the learning experience was determined by their perception of the challenges to their cognitive abilities. When the challenges, in their case the activities and material in the course, enabled the learners to reinvent themselves successfully in the FL, they were perceived as adequate and the anxiety arousal was facilitative.

In the current study, interview data showed that in general when participants entered the experimental session, their expectations were to be able to use the language they learned in their language class, and to do so as flawlessly and fluently as possible. Participants recognized that they learned most of the vocabulary and structures necessary for the tasks in previous years. They probably expected to be able to cope with the tasks with ease, and anxiety came about when their expectations clashed with the reality of their performance, as they could not retrieve the vocabulary or apply flawlessly and in real time the grammar rules they had learned. In other words, participants wanted to display a positive image of themselves as successful language learners and communicators, and not making mistakes seemed to be their way to do so.

Arnold and Brown (1999) argued that "mistakes can be viewed as both internal and external threats to our ego" (p. 11). In their view, the learners' critical and performing self can be in conflict when a mistake occurs. Learners can criticize their own mistakes and perceive others' criticism, feeling judged not just as language learners but as persons. Learners are aware that there is a discrepancy between their 'true' self and their FL self, whose authenticity is restricted by the limited range of language choices they have. Nevertheless, they can display a successful social image as language learners, which is informed by their beliefs about language learning.

In the current study, several comments showed a that many participants believed that successful language learners "speak well", "say everything kind of perfectly", and "do

everything correct". This belief might have originated from participants' previous instructional experiences, and solidified in them. It is not surprising then that making errors was the fourth most frequent source of anxiety during the interactions. In Gregersen and Horwitz's (2002) study, anxious and non-anxious learners were equally aware that their performance was imperfect, but differed in their reactions to it. In particular, the goal for anxious learners seemed to be to avoid errors, whereas non-anxious learners were more focused on continuing to communicate.

In the current study, some participants' goals and expectations shifted during the experimental session from being accuracy-oriented to communicative-oriented, and this contributed to reduce their anxiety (e.g., participant #2 and 14). However, when participants believed that to be good language learners they should be accurate and fluent, their sense of self and their self-esteem was threatened by realizing they made mistakes, and debilitating anxiety arose. For these learners, making mistakes was perceived as a failure, which made their self and social image vulnerable. Setting standards is a necessary step in accomplishing learning goals, however being overly concerned with speaking flawlessly can be detrimental, because trial and error is a natural part of language learning. To reinvent themselves as successful L2 speakers (Spielmann & Radnofsky, 2001), learners should therefore be able to adapt their expectations about their ability vis -à-vis the context. This is possible if learners can experience language learning environments in which attention is shifted from accuracy and proper social impressions to communicating the message.

5.1.3 Specific reasons for state anxiety arousal during task-based interactions

Participants' interview data highlighted some general anxiety-inducing factors: the degree of collaboration in the interaction, the language structures involved (task characteristics), the fear

of negative evaluations when interacting with a higher-proficiency peer (interlocutors' characteristics), and learners' expectations (informed by learners' beliefs). Moreover, participants provided specific reasons for their state anxiety arousal during the interactions. The reasons they mentioned (e.g., I didn't know the word; I wasn't sure if it was correct) are an inherent part of the learning process and of L2 performance, and it is not surprising that all learner participants experienced similar situations. As language learning consists of a continuous process of hypotheses formation-testing-and reformulation (Gass, 1988), trying to retrieve vocabulary, striving to apply grammar rules with several trials, and using coping strategies when a word is not known or when a mistake occurs are not signs of failure, but, on the contrary, signs of an on-going learning process. What differed high from low anxiety learners in this study was how they interpreted the concrete reasons for their anxiety arousal in light of their individual perception of the general anxiety-inducing factors analyzed: task and interlocutors' characteristics and learners' expectations. Put simply, what made participants anxious was not just making a mistake or not remembering a word, but what this said about them as L2 learners in front of that particular familiar/unfamiliar interlocutor in that particular easy/difficult task.



Figure 11. Relationship between general and specific anxiety-inducing situations.

Figure 11 is a visual representation of how the concrete reasons for participants' anxiety during the interactions are influenced by the general contextual and individual factors that informed the L2 interaction. In the Venn diagram, the three circles represent contextual factors (task characteristics and interlocutor's characteristics), and individual factors (learners' expectations). Each circle contains the characteristics that emerged in the current study as most decisive for increasing/decreasing learners' anxiety. The specific reasons mentioned for anxiety arousal are in the area of overlap among contextual factors (task characteristics and interlocutor's characteristics), and learners' expectations. This shows that the anxiety-inducing value of each specific reason derives from the interplay of contextual challenges and learners' expectations for each learner.

For example, the common experience of not knowing or remembering a word or having to pause to think about a verb conjugation when speaking the FL (i.e., specific reasons for anxiety arousal) can provoke a higher or lower spike in anxiety according to the learner's expectations and the task and the interlocutor's challenge. Learners evaluate the challenges that contextual factors provide to their cognitive abilities in light of their expectations to be successful L2 speakers, which in turn are informed by their beliefs about language learning. For example, not knowing a word a learner would like to use, can rise anxiety when the challenge of the task demands (e.g., the use of specific vocabulary or structures) is combined with the challenge of interacting with higher-proficiency unfamiliar interlocutors, whose negative judgment is feared.

The perception of contextual and individual factors can differ greatly between participants, and can have therefore different impacts of the specific anxiety-inducing episodes. Data showed that participants had different perceptions about task complexity and interlocutor's proficiency. For example, when the task complexity is perceived as adequate and the interlocutor's characteristics are not threatening for the learner's ego, not knowing a word will probably not cause high anxiety. However, it could still cause anxiety arousal due to the learner's own judgment on his/her own performance.

In the current study, low anxiety participants differed from the high anxiety ones mostly because of the frequency, and partially the intensity, of their state anxiety episodes. This means that low anxiety participants assessed less frequently and/or at lower anxiety levels the retrieval of a word or their mistakes (specific reasons for anxiety) as anxiety inducing. This is probably due to their different assessment of their own abilities to cope with the contextual challenges in relation to their expectations and beliefs. The specific reasons participants provided for the spikes in their anxiety were in general complementary to the reasons provided for their anxiety decrease. When considering the most frequent reasons in the list for anxiety increase and decrease, participants felt anxious most frequently when they "didn't know the word or verb" they wanted to use, and their anxiety decreased when they "knew how to say what they wanted to say". Again, anxiety increased when they "couldn't remember" the word or they "[weren't] sure if it was correct", and decreased when the "interlocutor said the word [they were] looking for". The fourth most frequent reason for anxiety increase was that participants "realized [they] made a mistake", but anxiety decreased when "interlocutor could understand what [participants were] saying" and they "could understand the interlocutor". This shows that there are clear ways out of each linguistic and interactional situation, which caused participants' anxiety.

The data seem to indicate that when learners' linguistic resources are not available learners can and should use the interactional resources their interlocutor can provide (e.g., interlocutor provides the word by means of confirmation checks). In other words, when learners' information processing and memory-retrieving processes come short in real time L2 interaction, but interactants share the goal of reaching an understanding, collaboration through negotiation for meaning can alleviate anxiety. However, to make use and take advantage of all available resources to communicate and learn through it, learners should be able to assess the task and interlocutor' s challenges as ways for them to improve and emerge as successful L2 users. This is possible when learners' expectations are informed by adequate and realistic beliefs about their learning process.

5.2 State and trait anxiety

MacIntyre and Gardner (1991) argued that trait FLA results from repeated occurrences of state anxiety in the FL class, which become associated with language learning, and differentiated from other contexts. This seems to suggest that state anxiety is the temporary process of becoming anxious for FL-related issues, while trait anxiety can be seen as the product of solidifying the repeated anxious experiences into a general attitude. Although the two constructs are clearly related, in the current study no significant correlations were found between measures of trait and state anxiety. This indicates that their relationship is not linear, but possibly dynamic. This corroborates other findings in the current study, which showed the high contingency of state anxiety on the interplay of contextual and individual factors.

Some factors might have a more lasting impact on learners' attitudes and approaches to language learning and be similar across trait and state anxiety (e.g., familiarity reduces anxiety). However, the interplay of factors might aggravate or alleviate their impact. For example, in general, familiarity with the interlocutor seems to make learners less anxious and less afraid to make mistakes (see example 12 section 4.1.1). However, when participants interacted with the familiar NNS peer, the higher-proficiency factor triggered comparisons mechanisms, and fear of negative evaluations, canceling for some participants a possible positive familiarity effect or sense of collaboration between NNSs. Although I argued that trait FLA anxiety is also subject to change depending for example on new learning environments the learners might experience (e.g., a new language teacher with a new teaching method), it is nonetheless bound to be more stable, than the moment-by-moment reassessment of the stimulus in real time. It is clear thus that the different timescales and stability/variability of state and trait anxiety require measuring

methods apt to capture them, and their non-linear relationship should be tested taking into account its dynamicity.

5.3 State anxiety, L2 learning, and incidence of feedback

The significant difference between participants' pre and posttest scores indicated that the four task-based interactions were beneficial for participants, who in general improved in accuracy in the target structures, number of attempts to use them, and fluency. When broken down by anxiety groups, there was no significant difference between gain scores of participants in the high, medium, and low anxiety groups on any of the three measures. Participants improved their oral performances from pre to posttest regardless of the high or low anxiety during the experimental session. This finding does not align with previous research (e.g., Rassaei, 2015; Sheen, 2008) that found a modulating role of FLA on the effect of corrective feedback, and a cognitive interference at the input, processing and output stages of language learning (MacIntyre & Gardner, 1994a).

The different results might be due to some crucial differences in the operationalization of anxiety and in research design. Previous studies looked at participants' general disposition to be anxious in the language class (trait anxiety), and used an experimental design in which participants practiced in small groups, uttered a few sentences, and received only one type of corrective feedback. On the contrary, the current study looked at how and why anxiety developed while participants carried out the tasks and received feedback in real time in one-on-one interactions. A possible explanation for the fact that in the current study participants' improvement was not associated with their anxiety could be that practicing and receiving individualized feedback for four interactions outside the classroom in a FL environment was beneficial to participants' learning, regardless of their anxiety. It is noteworthy that the learners

participated in the experiment to have extra oral practice in the first place, and were therefore engaged in improving their L2 skills by doing the experiment. In previous studies, learners received comparatively less feedback, and definitely much less individualized feedback and practice. Research (Eysneck, 1979; MacIntyre & Gardner, 1994a) showed that when anxious learners are allowed more processing time, by exerting extra effort, they can overcome anxiety cognitive interference, and eventually reach similar results to those of low anxiety learners. It seems thus plausible that the amount of feedback and practice received in previous studies might not have afforded high anxiety learners enough time to process the feedback and take advantage of it. On the contrary, the abundant individualized and intensive feedback in the current study, might have allowed learners to process at least some of the several repeated occurrences of feedback, outbalancing some debilitating effects of anxiety on the cognitive processes.

Participants were therefore able to take advantage of at least some aspects of the interactions (e.g., feedback, practice, or use of strategies), and this resulted in some improvements in the posttest (e.g., more accuracy, more attempts, or more fluency). It is interesting that in the posttest all participants attempted to use the target structures more often. This indicates that participants adopted a more risk-taking attitude that could be the result of a higher confidence gained after interacting collaboratively with the interlocutors and receiving feedback, or even simply after having extra practice with the language.

Data analysis showed a positive correlation between the higher amount of feedback participants received from the NS and their gain scores. This suggests that the amount of feedback received when communication breakdowns and errors occurred might have a greater impact on learning than the possible detrimental effects of the anxiety they provoked. The fact that participants' learning was measured in comparison to their previous performance (pretest)

and not to a predefined score, might have also contributed to show improvement. This choice was made, to be consistent with the conceptualization of learning through interaction, which implies a process of hypothesis-testing. In this view, learning is thus not shown in instances of target-like production only, but also in changes in learners' productions. In sum, what from one perspective looked like a clear cause-effect relationship of how anxiety interferes with the beneficial effects of feedback (Sheen, 2008; Rassaei, 2015), appears to be a more complex relationship, when taking a closer look at the process of how and why anxiety arises in real time. State anxiety has emerged as the result of a dynamic interplay of factors, that are continually assessed and reassessed by learners who react according to their perception and interpretation of the challenges as beneficial for their learning and for their L2 self. Unveiling the mechanisms by which some situations can become more or less anxiety inducing can lead to a better understanding of the role of affective factors in L2 learning as well as to more effective interventions to alleviate FLA. The findings indicate that the intervention should take place at the level of contextual and individual factors, which inform learners' reaction to specific anxietyinducing episodes.

CHAPTER 6: CONCLUSION

In this chapter, I summarize the major findings of the current study, and explore the pedagogical and research implications. Finally, I examine the limitations of the study and conclude with some possible future directions.

6.1 Summary of findings

The findings of the current study purposefully shed light on how the rise and fall of participants' state anxiety might affect learners' ability to seize the learning opportunities afforded by the negotiations for meaning and corrective feedback during the L2 interactions. The focus on state anxiety is particularly important because it has been argued (MacIntyre, 1999, p. 37) that "the effects of anxiety on cognitive processes are a consequence of state anxiety arousal divides learners' attention between self- and task-related thoughts (Eysenck 1979, MacIntyre & Gardner, 1989), to minimize its interference and maximize learning opportunities, it is crucial to understand the mechanisms that trigger it.

In the current study, state anxiety arose during the interactions mainly for reasons pertaining to information-processing and memory-retrieval processes, which are common situations when learning and using an L2. Situations such as not knowing or remembering a word, or making a mistake did not emerge as causes of anxiety *per se*. They can provoke anxiety at different levels as a result of the interplay of contextual and individual factors. At the individual level, the standards participants held themselves to as L2 learners, informed by their beliefs about language learning, were the lens through which participants' assessed their performance and themselves as L2 users. At the contextual level, some factors that promote L2 learning through interaction, such as familiarity with the interlocutors and their higher
proficiency (Plough & Gass, 1993; Varonis & Gass, 1985), as well as higher task complexity (Robinson, 2001), seemed to be also anxiety-inducing factors. In particular, the challenge provided by the complexity of the target structures was accentuated when in one –way tasks learners did not feel supported by their interlocutor's collaboration, and when the comparison with interlocutor's higher proficiency triggered fear of negative evaluations. Each participant perceived task demands and interlocutor's characteristics as adequate challenges to their cognitive abilities or as anxiety-inducing situations according to their ability to cope with them successfully. Participants' interpretation of successful outcomes was contingent on their goals and expectations. In sum, making a mistake could result in high anxiety, for learners who thought they should be able to use flawlessly what they had learned in class. However, it could result in low or no anxiety, for learners whose goal was to communicate and who considered errors part of the learning process.

The development of participants' state anxiety clustered around three main patterns of fluctuation according to the frequency of anxiety arousal at high, medium or low levels. In general, these patterns were not consistent for participants across tasks, highlighting their contingency on both individual and contextual factors. High, medium, and low anxiety participants generally improved from pre to posttests in accuracy in the use of noun-adjective agreement and past tense, and fluency. They also increased the number of attempts in using the target structures. Although improvement was not homogenous, it was not associated with learners' anxiety level. The significant association of improvement with the higher amount of feedback received from the NS might indicate that frequent, individualized feedback and negotiations of meaning can outbalance anxiety cognitive interference by giving learners extra opportunities to process positive and negative evidence. Finally, the within-participant and

across-task variation, and the contingency on learners' perception of contextual factors vis-à-vis their expectations show that state anxiety is dynamic in nature and lend support to the lack of significant relationship between trait and state anxiety found in the current study.

6.2 Pedagogical implications

The findings of the current study have implications on how FL state anxiety can be channeled and reduced by interventions on the underlying factors and mechanisms that trigger it. Recommendations on ways to reduce anxiety in the classroom setting have been suggested in previous studies, focusing in particular on activities tackling learners' beliefs, classroom procedures, and testing (Phillips, 1999; Young, 1991a; 1999). The focus of the current study crucially differs from the previous ones by considering learners interacting outside the classroom and without a teacher and classmates. In this new context, learner had the opportunity to reinvent and show their best L2 self- image, but unrealistic or inappropriate expectations might have interfered, creating frustration and anxiety at every step of the interaction that did not turn out as they had expected.

The findings highlighted the major role of learners' beliefs and expectations on their perception of task demands and interlocutors' characteristics, and ultimately on their performance. This suggests that even when the best learning opportunities are in place, unfulfilled expectations can cast a shadow on learners' self-image. The results can extend from temporary anxiety with possible cognitive interference, to learners' disengagement in the learning process altogether. The findings showed that L2 learners' interactional behavior outside the classroom might mirror what they experienced in the classroom, and the practices they absorbed. Instructional approaches and teaching methods definitely affect what learners believe language learning is about and their priorities in terms of accuracy and risk-taking behaviors. To

help learners face real life L2 interactions, there should be a balance in the classroom between accuracy-and communicative-oriented activities, so that learners can learn how to allow themselves to make mistakes when they focus on communicating meaning. Learners should be equipped to function as L2 users outside the somewhat protected classroom setting, and should therefore be empowered by becoming aware and in charge of their learning process.

One important implication is the importance of teaching learners about the language learning process. This would create more realistic expectations, and above all, it could help them build tolerance for the inevitable linguistically *imperfect* self-image of themselves when using the FL. Teachers should therefore be knowledgeable and up –to-date about developments in SLA research, which should in turn be made available to them. As for the learners, a starting point to develop learners' awareness could be using the Belief About Language Learning Inventory (BALLI) (Horwitz, 1988), as well as meeting successful advanced language learners, who could share their stories, challenges, and strategies about their language learning journey.

On a related manner, learners should be guided early on to recognize the learning value of challenging tasks and the interactional situations they engage in. This can help them develop coping strategies that contribute to building a successful self-image. Further, the study also showed that when some factors that promote learning are in place, learning can happen in spite of FLA. When abundant and non-threatening, practice, feedback, and negotiations can somewhat outbalance anxiety cognitive interference. This suggests the importance for anxious learners to increase the time they practice their oral skills, as practicing and receiving interactional support in a one-on-one setting appeared to be beneficial also for high anxiety learners' improvement, and partially for anxiety reduction.

6.3 Research implications

By investigating the connection of social factors, affective states, and cognitive processes, the current study addressed what Mackey (2012) called "the next steps that interaction-driven L2 learning research faces" (p. 142). Building on the large body of interaction and FLA research, this study connects the findings of these different research strands, and uses mixed-methods to shed light on how anxiety, one of the most researched affective factors in SLA, may influence how learners attend and process input and feedback, and benefit from them. The findings further SLA research by introducing a different time scale (per second variation). In this perspective, both state anxiety and interaction-driven L2 learning are considered processes that influence each other. The findings highlighted that the factors that promote learning in interaction may also provoke anxiety. However, in the specific context of one-on-one interactions with collaborative goals and individualized feedback, a large amount of input and feedback can somewhat limit the effects of anxiety and result in learners' improvement. As classroom settings and real life interactions may not provide such large amount of individualized feedback, one would want to know how state anxiety develops in learners' real life conversations in an L2 context or in an instructional setting.

The findings also show the necessity of considering the wider timeframe, which could extend from a single class period to an entire language course, or the learner's whole experience with language learning. The arousal of affective states during the interaction is the result of learners' perception of their performance through the lens of their expectations. Repeated occurrences of state-like emotions in a class period or a course might solidify into a general disposition, which might affect learners' approach to and involvement in the learning process. In sum, by putting together different timeframes, and looking at trait and state anxiety it is possible

to observe the process as well as the product of the role emotions in interaction-driven learning. This study shows that social, affective, and cognitive factors interact dynamically. This is also highlighted by the non-linear relationship between trait and state anxiety.

6.4 Limitations and future directions

While the findings of the current study are a valuable first step in the study of the development of affective states in interaction-driven L2 learning, some limitations should be acknowledged and can be used to improve and expand this line of research.

First, the idiodynamic method presents some limitations and challenges. As recognized also by MacIntyre and Legatto (2011), self-reports can be biased by memory-decay, face-saving, and self-enhancement strategies. Moreover, the fact that the researcher who conducted the stimulated interviews was also one of the interlocutors may have created a social desirability bias (Poupore, 2013), by which participants did not feel completely free to express possible negative feelings experienced in the interactions with her. Further, another limitation and source of concern is that participants used the idiodynamic rating method very differently. Some participants clicked very often to signal small changes in anxiety and comfort, whereas others clicked more rarely (50% or less of the interactional time). It is not clear how faithfully these different clicking behaviors may reflect how participants felt, and whether their interpretation of the values below zero (the comfort zone) might have affected their clicking behavior.

From a practical perspective, as the data collection included four interactions, four ratings, and four stimulated interviews back-to-back in a single session, participants may have experienced fatigue. However, this solution was chosen to prevent memory decay as much as possible. Moreover, the idiodynamic rating was performed at the end of the four interactions, and not after each interaction, to prevent participants from knowing in advance that they would rate themselves on a particular variable. This could have altered the situation and their behavior.

Regarding the analysis, previous studies using this method had a smaller pool of participants and focused on within-participants' fluctuations of the affective factor. Finding a criterion to observe patterns of anxiety fluctuation across participants was a challenging endeavor. I considered percentages of clicks on the different anxiety levels (i.e., percentage of time spent on the different levels) as indicative of participants' trend (high, medium, and low anxiety). Although sensible, this criterion still yielded somewhat heterogeneous groups, by virtue of the high variability of state anxiety. With a larger sample size, cluster analysis could be a viable way to find patterns among participants. In the current study, this option was not chosen because the number of clusters it yielded was too large compared to the relative small sample size.

Interaction research has shown that participants and interlocutors' gender, their familiarity with each other, and their proficiency clearly play a role in task-based L2 interactions. The different combination of these interacting variables can also be anxiety inducing. However, these variables were not controlled for in the current study. While familiarity with the NS was mentioned as a reason to alleviate anxiety, no participants mentioned interlocutor's gender, which could, however, have had an impact on their behavior. Also, participants' proficiency was not tested in the experiment. Although learners were recruited according to the language class they were enrolled in, their proficiency varied greatly.

This study included a limited number of participants with specific characteristics and the findings cannot necessarily be generalized. As findings need support or confutation, the interacting factors emerged, as wells as those that were not controlled for, could be manipulated

to test if their role in the mechanisms observed hold with more or less anxiety inducing target structures, familiar/non familiar interlocutors, different/same gender, participants' higher/lower proficiency, and more natural feedback. In particular, as learners' beliefs emerged as a crucial factor determining participants' assessment on their performance, it would be advisable to continue this line of research by including learners with different learning beliefs and expectations, and also by working on interventions on their beliefs, and how dynamic changes in expectations may affect anxiety during interactions. APPENDIX

Survey

Background information

- 1. Please choose a pseudonym: _____
- 2. How old are you? _____
- 3. I'm male / female
- 4. My first language is _____

5. I studied the following foreign languages: _____

- 6. I have studied Italian for ______semesters /I haven't formally studied Italian
- 7. Did you participate in a study abroad program in Italy? Yes/ No. If yes, for how long did you study in Italy for?
- 8. How would you rate your level of Italian?
 - Novice High: I can communicate and exchange information about familiar topics using phrases and simple sentences, sometimes supported by memorized language. I can usually handle short social interactions in everyday situations by asking and answering simple questions.
 - Intermediate Low: I can participate in conversations on a number of familiar topics using simple sentences. I can handle short social interactions in everyday situations by asking and answering simple questions.
 - Intermediate Mid: I can participate in conversations on familiar topics using sentences and series of sentences. I can handle short social interactions in everyday situations by asking and answering a variety of questions. I can usually say what I want to say about myself and my everyday life.
 - Intermediate High: I can participate with ease and confidence in conversations on familiar topics. I can usually talk about events and experiences in various timeframes. I can usually describe people, places, and things. I can handle social interactions in everyday situations, sometimes even when there is an unexpected complication.
 - Advanced Low: I can participate in conversations about familiar topics that go beyond my everyday life. I can talk in an organized way and with some detail about events and experiences in various timeframes. I can describe people,

places, and things in an organized way and with some detail. I can handle a familiar situation with an unexpected complication.

- Advanced Mid: I can express myself fully not only on familiar topics but also on some concrete social, academic, and professional topics. I can talk in detail and in an organized way about events and experiences in various timeframes. I can confidently handle routine situations with an unexpected complication. I can share my point of view in discussions on some complex issues.
- Advanced High: I can express myself freely and spontaneously, and for the most part accurately, on concrete topics and on most complex issues. I can usually support my opinion and develop hypotheses on topics of particular interest or personal expertise.

Language learning survey

Please answer to the following questions about your thoughts and beliefs as a learner of Italian. By choosing a number from 1 to 8, you will indicate how much you agree or disagree with the following statements. Please do not leave out any item.

Strongly disagree 1 2 3 4 5 6 7 8 Strongly agree

CAS Scale (Hardison, 2014)

- 1. I am comfortable starting conversations in Italian with a native speaker.
- 2. I think I can communicate well in Italian when I talk to a native speaker.
- 3. I feel confident when I speak Italian with a native speaker.
- 4. I feel confident when I speak Italian with another nonnative speaker.
- 5. I think I communicate well in Italian when I talk to another nonnative speaker.
- 6. I think I make a good impression when I speak Italian with another nonnative speaker.

Language anxiety (Dornyei & MacIntyre, 2006; Sheen, 2008)

- 1. I always feel that the other students speak Italian better than I do.
- 2. When I give my answers in the Italian class, I often lose confidence.
- 3. I feel good when I have to speak Italian in front of my classmates.
- 4. I'm afraid the other students will laugh at me when I speak Italian.

- 5. I'm generally nervous when participating in my Italian class.
- 6. When speaking in the Italian class, I'm not worried about Italian grammar.
- 7. I'm enjoying my Italian lessons because I'm comfortable with this level of Italian.
- 8. I'm afraid of speaking right after the teacher corrects my errors.

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