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Background

Language anxiety\(^1\) is a prominent topic in the second language acquisition (SLA) literature, likely because it is both an intense, unwelcome emotion and a common experience. There is a long list of potentially negative consequences of anxiety arousal including, but not limited to, making language learning more difficult and time consuming, introducing distracting thoughts, unpleasant physical arousal (e.g., a racing heart), an urge to avoid or leave communication situations, and a reluctance to engage with new people or to try new things (MacIntyre, 2017). This chapter provides a systematic review of the research on second language anxiety. After a brief overview of approaches to the topic, this chapter reviews the literature on language anxiety by examining emotion theory and how it can be applied to language anxiety. Next, supporting research results are presented along with an extended discussion of how those data have been collected. The chapter ends with a suggestion for three possible future research directions.

Approaches to Language Anxiety

Looking back over four decades of research, MacIntyre (2017) identified three broad phases of anxiety research that capture differing approaches taken to study language anxiety. The earliest approach was referred to as confounded, the second was called specialized, and the third and most recent approach is called dynamic. These are admittedly fuzzy categories, but they help to highlight the different ways in which language-anxiety research has developed.

Prior to the mid-1980s, there was not much research that focused on the role of anxiety in language learning. Anxiety concepts, such as manifest anxiety, test anxiety, and facilitating/debilitating anxiety, were borrowed from other disciplines without much consideration of how those conceptualizations of anxiety might influence language learning and use. This has been labeled “the confounded approach” because a hodgepodge of anxiety constructs was being used (MacIntyre, 2017). Scovel (1978) offered the first compilation of language-learning anxiety literature; it did not bode well for research progress. The few available studies produced “mixed and confusing” results (p. 132), including positive, negative, and near-zero correlations between anxiety and measures of language performance. Scovel concluded that anxiety was not well understood, and the field perhaps was not prepared to engage with the concept. Rather than identifying and measuring anxiety specifically related to language learning, the confounded approach used measures of anxiety related to experiences that were not necessarily related to language studies. Anxiety is an emotional
reaction, so the trigger or source of anxiety is a critically important consideration, and context matters a great deal in understanding the source, course, and consequences of emotional reactions. The confounded approach did not account for context particularly well, limiting research on the topic.

The second approach, the specialized approach (MacIntyre, 2017), contextualizes anxiety within language situations, such as classrooms or speaking the L2. This approach laid the groundwork for increasingly situation-specific ways to define and measure language anxiety. The roots of this approach lie in a model of learning motivation developed by Gardner (1985), which considered anxiety inside the classroom and when using the L2 outside the classroom. Gardner’s approach was based on the idea that, psychologically, language learning was sufficiently different from other subjects that it had to be defined and measured as its own construct. Horwitz et al. (1986) elaborated the argument based on the moderate-to-severe anxiety experiences of their learners. They proposed a concept and 33-item measure, the foreign language classroom anxiety scale (FLCAS), based on language students’ descriptions of anxiety-provoking aspects of their courses, including speaking, frequent testing, and fear of being negatively evaluated by their teachers and peers. Horwitz et al. (1986) argued, however, that these sources of anxiety coalesce into a “conceptually distinct variable in foreign language learning” (p. 125). Since the mid-1980s, specialized language anxiety literature has shown empirical support and consistent negative correlations between measures of language anxiety and L2 achievement; the evidence is reviewed below.

The third approach to language anxiety is more recent, emerging just in the past few years (Gregersen et al., 2014). We will use “dynamic” as an abbreviated label for the approach which relies on a complex dynamic systems perspective (Larsen-Freeman & Cameron, 2008) to conceptualize anxiety as an emergent and potentially rapidly changing experience. This incipient tradition conceptualizes anxiety as a constantly fluctuating product of interactions among many factors (Gregersen et al., 2014). From a dynamic perspective, anxiety is not seen as a trait-like disposition, but rather a continuous reaction to ongoing events, recognizing that even a typically relaxed learner can experience an anxiety reaction. The overarching theoretical perspective, complex dynamic systems theory (CDST), is consistent with emotion theories that allow for both stability in typical reactions, as well as a focus on how and why those reactions change (Larsen-Freeman & Cameron, 2008).

Over the years, the confounded approach was abandoned in favor of the specialized approach, which has generated much of the research literature to date (Horwitz, 2017; MacIntyre, 1999) and is still highly influential. There have not yet been many studies in the dynamic tradition, but initial results are promising. The specialized and dynamic approaches are best considered complementary because they address different types of questions. The specialized approach tends to ask about typical patterns and differences from person to person; the dynamic approach focuses on reasons for changes over time, often within specific individuals.

Theories

Emotion Theory Applied to Anxiety

Although a complete review of all the relevant emotion theory is well beyond the scope of this chapter, we will examine key elements of the definition and functions of emotion. According to Reeve (2015), emotions are “short-lived, feeling-purposive-expressive-bodily responses that help us adapt to the opportunities and challenges we face during important life events” (p. 340). This definition captures the integrated set of reactions common to anxiety: feeling emotional, worried, distracting self-related cognition, “butterflies” in the stomach, racing heart, sweaty palms, and other responses. As an anxiety reaction grows in intensity, it can take over much of what a person thinks and does, and at very high levels can be debilitating. At their core, emotions are adaptive responses that function to “prepare us with an automatic, very quick, and historically successful response to life’s fundamental
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tasks” (Reeve, 2015, p. 354). Experiencing an emotion reflects the coordinated action among physical, mental, and social processes that arise in reaction to important events (Izard, 2010).

From a functional perspective, all emotions are adaptive, including unpleasant or unwelcome ones such as anxiety (Reeve, 2015). The broaden-and-build theory of emotion contrasts positive and negative emotions (Fredrickson, 2013). According to the theory, negative emotions generally narrow a person’s focus toward specific people or objects. Anxiety directs attention toward real or perceived threats, prompting an assessment of what is at stake (e.g., risk of embarrassment and consequences of failure) and initiating coping efforts (Reeve, 2015). Anxiety creates arousal which both increases motivation and interferes with cognition (Eysenck & Derakshan, 2011). This means that a little anxiety can appear to facilitate performance on simple or boring tasks. However, the distracting qualities of anxiety emerge at higher levels of arousal on more complex or demanding tasks, suggesting that increasing anxiety beyond an optimal level will progressively, negatively affect performance. This dual effect is responsible for what might be called facilitating and debilitating effects of anxiety (Horwitz, 2017). Yet the complexity of emotional arousal, where positive and negative emotions often co-occur, might be a better way to conceptualize the ongoing emotional processes (MacIntyre, 2017).

Language Anxiety Theory

There is not one integrated, overarching theory that accounts for language anxiety. Generally, language anxiety is hypothesized to emerge from negative experiences early in the language-learning process (MacIntyre & Gardner, 1989). The roots of language anxiety lie in a combination of learner-internal and learner-external circumstances including difficulties related to L1 skills and L2 aptitude (Sparks & Patton, 2014), learner personality traits such as perfectionism (Gregersen & Horwitz, 2002), teaching practices such as harsh error correction (Young, 1990), the ethnolinguistic context (MacIntyre & Vincze, 2017), motivational orientations (Papi, 2010; Papi & Khajavy, 2021), and other factors. Over time, as a person comes to expect both negative experiences and anxiety arousal, regular patterns emerge and become a regular feature of language learning situations (MacIntyre & Gardner, 1989). Anticipating anxiety arousal can feed further anxiety in a self-exacerbating syndrome (Gregersen et al., 2014). There is agreement in the literature that language learning is a sufficiently unique experience to make language anxiety distinguishable from anxiety in other domains (Horwitz, 2017; MacIntyre & Gardner, 1991), though that position has been debated (Sparks & Ganschow, 1995; MacIntyre, 1995). Research in recent years has defined ever more specialized constructs related to specific skills (e.g., reading and writing) or processes (e.g., input, processing, and output).

Language anxiety can be differentiated from other anxiety-arousing situations because it is tied to the purpose of language learning and communication. If emotions are adaptive (Reeve, 2015), language anxiety has the potential to contribute to successful adjustment to one’s surroundings, but how? Anxiety signals threat and the potential for negative consequences, a potential benefit is caution in the face of a potential threat. Anxiety may be considered a self-protective, adaptive response to the immediate threat of uncertainty. In the very short term, an anxiety response motivates self-protective behaviors that deal with an uncomfortable situation even if such actions limit learning and practice opportunities in the longer run. Although avoidance deals with the immediate, sometimes intense, short-term, negative arousal of anxiety, repeated occasions of this process can generate long-term, cumulative effects on learning (MacIntyre, 1999).

Research

Evidence

In this section, we review the empirical evidence describing the relationship between anxiety and L2 learning outcomes, focusing on achievement, cognitive processing, and specific language-skill
areas. We also consider research on the relation of language anxiety to other key individual difference variables, including personality, gender, motivation, and other emotions.

**Language Anxiety and Learning Outcomes**

*L2 achievement.* Overall, narrative reviews conclude that language anxiety has a negative relationship with students’ achievement or performance (see Horwitz, 2001; MacIntyre, 2017), a view supported by empirical evidence. The available evidence has been summarized in three meta-analyses, each with a slightly different focus, but all reach a similar conclusion. Teimouri et al.’s (2018) meta-analysis was based on a total of 105 independent samples and 19,933 individual participants. The meta-analysis yielded a mean correlation estimated at \( r = -0.36 \) between language anxiety and achievement. The negative correlations for anxiety were similar for both course grades and language tests. However, of the four different language-achievement measures they reviewed (i.e., course grade, GPA, objective language test scores, and self-perceived competence), language anxiety showed the strongest relationship with measures of self-perceived language competence. The authors noted that few studies have carefully addressed the characteristics and quality of the instruments used to measure language achievement.

Zhang (2019) reported a meta-analysis of 46 studies and 10,228 participants. The meta-analysis adopted a different set of selection criteria, notably excluding self-perceived assessments of performance and the composite measure of GPA but including an analysis of proficiency level as a moderator variable. Overall, Zhang reported a negative correlation of \( r = -0.34 \) between language anxiety and language performance as measured by course grades and language performance tests. The analysis of moderator variables suggested that similar correlations between language anxiety and performance were observed for low, moderate, and high proficiency groups (ranging from \(-0.35\) to \(-0.39\)). There was, however, variability in the anxiety-performance relationship among different skill areas. Listening showed the strongest estimate of a potential effect of anxiety \( (r = -0.53) \), and anxiety associated with reading and testing showed weaker correlations \( (r = -0.23 \) and \(-0.27, \) respectively).

A third meta-analysis was conducted by Botes et al. (2020), which included 59 studies and 12,858 participants. The meta-analysis targeted studies that employed the FLCAS to measure language anxiety (see the Data Elicitation section below). Botes et al. report a correlation of \(-0.39\) between language anxiety (measured by the FLCAS) and academic achievement. Further, they aggregated across a relatively small number of studies that showed correlations between language anxiety and academic achievement scores in speaking \( (-0.26) \), reading \( (-0.034) \), writing \( (-0.47) \), and listening \( (-0.53) \). Botes et al. further noted that approximately half of the studies they included were also included in the Teimouri et al. (2018) meta-analysis. The consistency across the three meta-analyses published thus far suggests that language anxiety is moderately and negatively correlated with language performance measures despite differences in the scales used to measure anxiety and the type of proficiency being tested, but the correlations appear to vary across language-skill areas.

**Specific Language Skills**

Among the four main areas, speaking and writing are considered expressive skills, whereas listening and reading are interpretive skills (Lee, 2016; Rubin, 1994). Listening appears to be the most challenging of the four skills because of its complexity and ephemeral quality—sound dissipates and cannot be reviewed the way a piece of text can be re-read, giving the listener little control over the language input (Kim, 2000). As anxiety consumes cognitive resources, anxious students become less efficient in organizing, interpreting, and interrelating both aural input and text, resulting in greater difficulty in remembering information. When anxiety affects cognitive input and organizing processes (MacIntyre & Gardner, 1994b) by reducing the efficiency of working memory...
(Chen & Chang, 2009), missing pieces of aural input affect performance (Elkhafaifi, 2005; Zhang, 2013). Although reading offers a relatively higher degree of control for the speaker, anxiety exerts its effects by generating more off-task, interfering thoughts, leading anxious readers to recall less content of a passage, compared to their less anxious counterparts (Sellers, 2000).

Expressive skills such as encoding messages are complex tasks, especially in a social setting such as a classroom or conversation. Pérez Castillejo (2019) found that language anxiety is a strong predictor for utterance fluency (i.e., the acoustic characteristics of oral performance), and anxious speakers may be less efficient in encoding their message in the target language. Using an experimental approach, Steinberg and Horwitz (1986) found that a group of students who were treated in an anxiety-provoking manner generated less personal and interpretive descriptions of ambiguous pictures than a group made to feel relaxed. In terms of expressive writing skills, higher anxiety is associated with lower writing self-efficacy, motivation, and poorer performance on a timed L2 writing task (Cheng, 2004). More recently, Han and Hiver (2018) found that as learners’ L2 writing competence grew, they developed regulatory skills that allowed their elevated writing anxiety to co-exist with productive task-specific beliefs.

Cognitive Processing

The different skill areas implicate different combinations of cognitive processes, and anxiety arousal placed demands on various processes including attention and working memory (Chen & Chang, 2009; Pérez Castillejo, 2019). Eysenck (1979) argued that anxiety arousal impairs the quality (scores) and efficiency (speed) of cognitive performance by dividing attention into task-related cognition and self-related cognition. However, there is a need for more empirical evidence supporting direct links between language anxiety and L2 processes underlying language aptitude and performance (Sparks & Patton, 2014). MacIntyre and Gardner (1994b) provided correlational evidence that examining detailed processing tasks at different stages of learning and production has value. They showed that language anxiety correlated with a poorer quality of performance across a series of tasks (including digit span, thing category, cloze test, vocabulary learning, and others), but when tasks allowed for increased effort, anxiety differences disappeared. That is, when a task allowed for learner control over additional time and effort, anxious learners could make up for deficiencies in the quality of performance. The results are consistent with attentional control and processing efficiency theory (Eysenck & Derakshan, 2011).

In one of the few studies to take an experimental approach that used random assignment of participants to control for pre-existing differences in ability and other factors, MacIntyre and Gardner (1994a) tested the effects of inducing anxiety on both the speed and quality of performance on a computerized vocabulary learning task. The presentation of the task separated the input, processing, and output stages of learning. They aroused anxiety by introducing a video camera at different times for different groups. When the camera was introduced at different stages of processing, anxiety increased, and task performance suffered most at that stage. The results generally conformed to expectations, but replication and additional experimental methods surely are needed.

Language Anxiety and Other Individual Difference Factors

There is more to life, language, and learning than cognitive processes and test scores. The concern for language anxiety extends beyond testing to a concern for the sources of anxiety and ways to reduce its negative effects.

Personality

Some people seem to be more anxious than others, and research has examined the relationships between anxiety and learner personality traits. Dewaele (2002) studied whether three basic
personality traits (extraversion, psychoticism, and neuroticism) were linked to language anxiety in French (L2) and English (third language; L3) among Flemish students. Results showed that language anxiety in L2 and L3 differed significantly in the way that they correlated with personality. Dewaele (2002) concluded that each language might generate a different anxiety profile, supporting the specificity hypothesis and connections to personality and demographic variables. A follow-up study revealed neuroticism was correlated with foreign language classroom anxiety (FLCA) among multilingual students (Dewaele, 2013). Similarly, a recent study found higher trait emotional stability (the opposite of anxious neuroticism) was the strongest predictor of lower language anxiety (Dewaele & MacIntyre, 2019). Other research has shown language anxiety to be positively associated with tendencies towards perfectionism, psychoticism, and tolerance of ambiguity but negatively associated with extraversion and emotional intelligence (for a review, see Dewaele, 2017).

Gender

Research linking language anxiety and gender has produced mixed results. Several studies show significant gender differences, with females scoring higher on FLCA than males (Dewaele, 2013; Dewaele & MacIntyre, 2014; Dewaele et al., 2016; Elkhafaifi, 2005; Park & French, 2013). However, other studies failed to find a link between gender and language anxiety (Aida, 1994; Matsuda & Gobel, 2004). Additionally, language learners’ gender typically is unrelated to skill-specific language anxiety, including listening (Elkhafaifi, 2005), reading (Matsuda & Gobel, 2004), and speaking anxiety (Woodrow, 2006).

Motivation

In line with the theory reviewed above, evidence shows multiple pathways connecting language anxiety to motivation. Under some conditions, low-to-moderate arousal associated with anxiety might be interpreted as motivation, but at higher levels, the unpleasant feelings associated with anxiety become aversive. Early correlational research on integrative motivation, which reflects learning the language to interact with its speakers, showed a consistent, negative relationship between motivation and levels of anxiety experienced in the classroom and when using the language (MacIntyre & Gardner, 1991; Gardner, 2010). An alternative motivational perspective, the L2 motivational self system (Dörnyei, 2005, 2009), is based on the idea that learners are motivated 1) to reduce the perceived discrepancy between their actual L2 selves and desirable (ideal) future L2 selves, and 2) to meet obligations and expectations that significant others (e.g., their parents) hold. Previous research suggested that L2 learners’ perception of actual and future selves may trigger different emotional reactions, guide their current behaviors, and further influence their achievement (Papi, 2010; Papi & Teimouri, 2012; Saito et al., 2018). More specifically, Papi (2010) found that language learners were more anxious if they put effort into learning the L2 because of a sense of obligation (the ought-to L2 self). Follow-up research concerned the differential role of anxiety on learners’ motivation (Papi & Teimouri, 2012; Teimouri, 2017). Among learners motivated by strong ought-to L2 self, anxiety may facilitate paying attention to avoid potential negative outcomes. In contrast, among learners with strong ideal L2 self who are sensitive to positive outcomes, anxiety might have more of a negative effect (Papi & Khajvay, 2021).

Other Emotions

For a long time, anxiety seemed to be the only emotion that was taken seriously in the L2 literature (Dewaele & MacIntyre, 2014). Researchers are examining anxiety as one of many emotional experiences associated with language learning. Although enjoyment has been consistently found to correlate negatively with language anxiety (Dewaele & Alfawzan, 2018; Dewaele & MacIntyre,
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2014, 2019), these two emotions should not be considered as opposite ends of the same continuum. Instead, anxiety and enjoyment are best considered distinct—but-correlated emotions that function differently in language learning (Boudreau, MacIntyre, & Dewaele, 2018; Dewaele & Alfawzan, 2018; Dewaele & MacIntyre, 2014). MacIntyre and Vincze (2017) examined the roles of a range of positive emotions (e.g., joy, gratitude, serenity, interest, hope, pride, amusement, inspiration, awe, and love) and negative emotions (e.g., anger, contempt, disgust, embarrassment, guilt, hate, sadness, feeling scared, and being stressed) and found that, to the extent that learners tend to experience relatively more positive emotion, they experience lower anxiety and higher L2 motivation. Research is showing that the full range of emotions deserves research attention (Dewaele & MacIntyre, 2014).

Data Elicitation

This section synthesizes the methodological aspects of the empirical research conducted in language anxiety. In general, the methods that have been used in the research can be collected into three streams: correlational, experimental, and dynamic approaches.

Correlational Methods

By far the most common way of assessing language anxiety is through a correlational approach using a multi-item anxiety scale administered as part of a survey or questionnaire. Below, we will review six options, starting with by far the most frequently used scale the FLCAS (Botes et al., 2020). As the literature has matured, more specific anxiety-related scales have emerged related to specific skill areas (i.e., speaking, reading, writing, and listening) and stages of cognitive processing (MacIntyre, 2017; Teimouri et al., 2018). Researchers advocated for a skill-based approach as a useful way of conceiving anxiety in language learning because each skill may activate distinct anxiety-arousing factors that can be examined (King & Smith, 2017).

Foreign Language Classroom Anxiety Scale

In their seminal study, Horwitz et al. (1986) introduced the FLCAS, a 33-item, five-point Likert-scale questionnaire, to measure anxiety specific to L2 learning in the classroom. Horwitz (1986) reported strong reliability of the scale (Cronbach’s alpha = 0.94) and the moderate correlations between the FLCAS and other types of anxiety scales helped establish evidence of its validity (for more detail, see Botes et al., 2020). The FLCAS has been found to be a highly reliable scale to measure language anxiety, with an internal consistency above 0.93 in most studies (e.g., Aida, 1994; Park, 2014; Tóth, 2008). Dewaele and MacIntyre (2014) reported an eight-item short form of the FLCAS with strong reliability. The FLCAS is by far the most frequently used questionnaire in language anxiety studies.

Listening

Elkhafaifi (2005) developed the foreign language listening anxiety scale (FLLAS), adapted from the foreign language reading anxiety scale (Saito et al., 1999, described below), to measure listening anxiety in the Arabic language classroom. The scale showed strong reliability (Cronbach’s alpha = 0.96). The FLLAS has been employed by various studies to investigate the nature of listening anxiety and its relationship with listening performance (Lee, 2016; Zhang, 2013). An alternative measure, the foreign language listening anxiety scale (Kim, 2000, 2005) is a 33-item measure of listening anxiety. To examine construct validity, Kim (2000) correlated listening anxiety scores with different scales of anxiety in a group of Korean EFL university students and found that listening anxiety can
be separated from other types of language anxiety and general personality-type anxiety. Kimura (2008) adapted and administered Kim’s (2000) scale on EFL students in Japan. Factor analysis of the scale yielded three subcomponents related to listening anxiety: emotionality, worry, and anticipatory fear representing apprehension of negative consequences of future events. Kimura’s data indicated an acceptable internal consistency at 0.93.

Speaking

Speaking anxiety has been strongly implicated in the FLCAS items (Aida, 1994; Cheng et al., 1999; Horwitz et al., 1986). Using the foreign language speaking anxiety (FLSA) questionnaire, a subset of 18 items from the 33-item FLCAS, Çağatay (2015) found that EFL students undergo a moderate level of speaking anxiety, and that anxiety level is not influenced by the level of learner proficiency. Although reliability is promising (Cronbach’s alpha = 0.93), further research is needed to establish the validity of this scale. Similarly, the foreign language speaking anxiety scale (FLSAS; Woodrow, 2006), which is based on “dual conceptualization” of speaking anxiety where anxiety manifests differently within and outside of the language classroom, provided a reasonable fit to the confirmatory factor analysis model and good internal consistency (Cronbach’s alpha for in-class anxiety = 0.89; out-of-class = 0.87; combined = 0.94). The SLSAS significantly predicted oral achievement. Finally, a more specific type of anxiety-arousing oral communication situation is public speaking. Yaikhong and Usaha (2012) developed a public speaking class anxiety scale (PSCAS) to measure anxiety in the EFL public speaking class in the Thai context. The preliminary PSCAS yielded an acceptable internal consistency at 0.84 and factor analysis suggested the scale shows good construct validity.

Writing

Research in L2 writing anxiety borrows heavily from L1 writing apprehension studies (King & Smith, 2017; Pae, 2013). The Daly-Miller writing apprehension test (WAT; Daly & Miller, 1975) has been widely used to assess students’ writing anxiety in both the first and second language contexts (Cheng et al., 1999; Pae, 2013). Previous studies have suggested that the scale is both valid and reliable (Cheng et al., 1999; Cornwell & McKay, 2000). Using the FLCAS and the L2 version of the Daly-Miller WAT, Cheng et al. (1999) differentiated the speaking and writing components of language anxiety and found a negative correlation between L2 writing apprehension and students’ writing course grade. Cheng (2004) developed the 22-item second language writing anxiety inventory (SLWAI) to investigate anxiety specifically experienced by L2 learners when writing in English. The SLWAI consists of three subscales: somatic anxiety, cognitive anxiety, and avoidance behavior reflecting the physiological, cognitive, and behavioral aspects of anxiety. The SLWAI has shown good reliability and validity since its development (Cheng, 2004; Kusumaningputri et al., 2018; Rezaeia & Jafari, 2014).

Reading

Saito et al. (1999) noted that due to difficulties associated with unfamiliar writing systems and cultural references, learners may become anxious when reading in an L2. They developed the foreign language reading anxiety scale (FLRAS), a 20-item, five-point, Likert-scale questionnaire, to measure L2 reading anxiety. Since Saito et al.’s (1999) landmark work, the concept of reading anxiety has been investigated in various studies (Mills, Pajares, & Herron, 2006; Matsuda & Gobel, 2004). These investigations have yielded mixed findings about the relationships of reading anxiety with general language anxiety and L2 reading performance. Zoghi (2012) constructed an alternative scale, the English as a foreign language reading anxiety inventory (EFLRAI), which showed acceptable validity and reliability (Cronbach’s alpha = 0.89). The EFLRAI comprised three anxiety-provoking
factors: top–down reading anxiety (TRA, reader-specific), bottom–up reading anxiety (BRA, text-specific), and classroom reading anxiety (CRA, classroom-specific). Subsequent research provided evidence for construct validity of the three-factor model of the EFLRAI and indicated decent reliability for the measure (Zoghi & Alivandivafa, 2014). The authors noted that the multidimensionality of the EFLRAI could help L2 instructors know in what contexts EFL reading anxiety occurs and allow them to act accordingly.

Three Stages of Processing

Using a stages of processing approach, MacIntyre and Gardner (1994b) employed a set of language tasks to investigate the subtle effects of anxiety across mixed-skill areas. The input-processing-output (IPO) anxiety scale uses six items to measure anxiety at each of the three stages. The input anxiety scale (IAS) measures the apprehension associated with taking in information in the L2; the processing anxiety scale (PAS) measures the apprehension experienced when organizing, storing, and assimilating information; and the output anxiety scale (OAS) represents the apprehension students experience when required to demonstrate their language use ability. Onwuegbuzie et al. (2000) examined the psychometric properties of the IPO anxiety scale and the extent to which these scales adequately measure and reflect the three-stage conceptualization of language anxiety. Three scales exhibited adequate levels of reliability, with a Cronbach’s alpha coefficient of 0.72 for the IAS, 0.73 for the PAS, and 0.75 for the OAS. Evidence of structural validity was established through exploratory factor analysis. However, confirmatory factor analysis revealed that modifications to the scales are needed to better capture how anxiety may influence processes involved at each stage.

Experimental Methods

The best evidence to address the causal role of anxiety comes from an experimental approach. However, there have not been many experimental studies of language anxiety. The few studies in which anxiety was induced among learners show that it can affect language performance. An early study by Steinberg and Horwitz (1986) randomly assigned participants to an anxiety treatment group, with a cold examiner and stress-loaded instructions, or a lower-anxiety group with a more relaxed, comfortable environment and instructions emphasizing the enjoyable aspects of the task. The different conditions produced subtle effects on language output. Similarly, in an experimental study, MacIntyre and Gardner (1994a) used a video camera to arouse anxiety during a computerized paired-associates vocabulary learning task. The task was divided into three stages to reflect different cognitive processing demands for each stage: input (i.e., initial exposure to the words), processing (i.e., learning the meaning of the words), and output (i.e., using the newly learned words). Participants were randomly assigned to one of four groups: a control group and three experimental groups that had anxiety arousal induced by introducing the video camera at the input, processing, and output stages, respectively. Results showed that the anxiety aroused by the video camera consistently reduced participants’ performance, particularly at the processing and output stages.

Additionally, quasi-experimental designs in which learners are divided into high versus low-anxiety groups based on pre-existing levels of anxiety have been used to investigate the role of anxiety in using corrective feedback (CF) techniques. For example, Sheen (2008) assessed the effects of anxiety on recasts, which is a form of CF. Participants were divided into four groups based on their responses to a language anxiety measure: two experimental recast groups, one with high and another with low anxiety, and two control groups with high or low anxiety. Participants in the experimental groups received a treatment in which a teacher recast their erroneous utterances during a narrative task; the control groups did not perform the narrative task or receive recasts.
Results showed that, compared to high anxious learners, the low anxious learners benefited more from recasts and produced higher levels of modified output. Using a similar design, Jang (2011) examined language anxiety in two CF techniques: recasts and prompts. Recasts were more effective in inducing repair for low-anxiety learners; however, the efficacy of using prompts was not affected by anxiety. Rassaei (2015) found that low-anxiety learners benefited more from metalinguistic feedback whereas high-anxiety learners benefited more from recasts.

More evidence of the causal role of anxiety in language learning and performance is needed. It has been argued by some that language anxiety is no more than an unpleasant side effect of differences in language aptitudes, such as native language linguistic coding processes and working memory, with anxiety having no causal role in determining the quality of language performance (Sparks & Ganschow, 1995; Sparks & Patton, 2014). That view has been challenged (Horwitz, 2010, 2017; MacIntyre, 1995, 2017). However, the available literature relies heavily on correlational methods which simply cannot rule out the systematic influences of pre-existing differences, such as early native language coding differences or other factors that correlate with both later language anxiety and L2 performance. It would be impossible to measure and account for all possible “third variables”. Therefore, the question is not whether learners with difficulties in language coding experience anxiety, but what are the consequences of anxiety arousal. The more relevant questions involve what happens after anxiety is aroused—how does it change a learner’s thought and action, how does it affect the ability to learn and communicate, and what role does it play in language testing and performance evaluation? There is a need for additional experimental methods with random assignment to higher-anxiety or lower-anxiety conditions; such methods would make inferences about the causal role of anxiety clearer.

Dynamic Methods

The dynamic approach to examining anxiety-related processes is based on CDST (Larsen-Freeman & Cameron, 2008). One of the core themes in the CDST approach is that language anxiety constantly interacts with other factors, some pre-dispositional (e.g., personality traits) and others contextual (e.g., reactions to teachers and peers). Data elicitation from a dynamic perspective requires numerous data points for an individual assessed repeatedly over a defined period. One such method that has been used to study language anxiety is the idiodynamic method (MacIntyre, 2012; MacIntyre & Gregersen, 2021) which generates data in four steps: 1) a communication event is recorded, 2) specialty software is used to continuously rate anxiety in the video of the event during the event, 3) a graph of the ratings is printed to show spikes and dips in anxiety, and 4) the respondent is interviewed to understand why ratings of anxiety fluctuate.

Gregersen et al. (2014) used the idiodynamic method to assess changes in language anxiety for high- and low-anxiety pre-service teachers giving an in-class presentation. They classified participants as either low or high anxiety based on FLCAS scores, and they examined group differences in participants’ oral presentation during the class. Individual-level results show that low-anxiety presenters felt less anxious overall, trended towards reporting lower anxiety more often, and described a more pleasant experience compared to high-anxiety presenters. Low-anxiety participants also prepared differently for the presentations, improvising more than high-anxiety participants who used memorization strategies more often. One of the low-anxiety presenters unexpectedly experienced an anxiety reaction during her presentation. Her anxiety emerged from being evaluated, talking in front of peers, using her L2, and being connected to a heart-rate monitor while presenting. Heart-rate data supported the emergence of a self-reported anxiety reaction during the presentation. Information on the specific effects of fluctuations in anxiety, especially how a low-anxiety student reacts when anxiety spikes, would have been lost if only questionnaire data had been collected. The idiodynamic method also has been used to examine the continuous, real-time interaction of language anxiety and language enjoyment (Boudreau et al., 2018) and willingness to communicate.
Anxiety (MacIntyre & Gregersen, 2021). The value of the idiodynamic method as a data elicitation tool lies in describing in detail both typical and atypical patterns of relationships among interacting factors. Instead of asking “what is the correlation between anxiety and enjoyment?”, a dynamic approach might ask “when is there a positive correlation? When is it negative? and What is responsible for the change?” Although the dynamic approach is relatively novel, the available results suggest it has value, with methods becoming better refined and more commonly used (Lowie & Verspoor, 2011).

Practical Applications

Why should language educators—teachers, learners, curriculum designers, and administrators—be concerned about language anxiety? We can highlight three reasons to be concerned. First, one of the behavioral hallmarks of an anxiety reaction is avoidance (Reeve, 2015), a reaction that can subtly affect the entire language learning process from choosing to begin or continue to study language to choosing whether to engage in conversation or not (MacIntyre & Gardner, 1994b). Anxiety arousal, or even anticipating anxiety in the future, can affect the way a learner studies or prepares for class, such as by wasting time over-studying (Horwitz et al., 1986) or trying to rely on error-prone memorization strategies (Gregersen et al., 2014). Anxiety also can lead to significant disruption of the flow of conversations if learners choose to avoid talking or limit their opportunities for turn-taking.

A second concern is related to a second hallmark of anxiety—distraction and disrupted cognition (Eysenck, 1979; Eysenck & Derakshan, 2011). The meta-analytic research evidence above suggests that listening comprehension is particularly strongly correlated with anxiety arousal (Botes et al., 2020) at all levels of ability (Zhang, 2019). Disrupting learning at input can have consequences at later stages of processing because the linguistic material needed for comprehension may be missing. Anxiety arousal at the output stage may lower test scores and lead to erroneous conclusions about a learner’s abilities. To the extent that anxiety lowers test scores, it may lead to underestimating the abilities of anxious learners, and there is evidence that anxious learners underestimate their own abilities (MacIntyre et al., 1997). Anxiety arousal, especially at higher levels, makes the learning process inefficient and uncomfortable.

The third source of concern is that the literature has not yet provided a clear answer to the question: What can be done about language anxiety? There are several suggestions for teaching practices that may reduce anxiety, though many have not been empirically tested in language classrooms. Anxiety is likely to be present in the language classroom at all levels because teachers are working with learners who are developing and testing the limits of their abilities, and a promotion-oriented approach to L2 teaching and learning has been recommended (Papi & Khajvay, 2021). Dewaele et al. (2017) found that language anxiety is not as strongly correlated with teacher behaviors as is language enjoyment. They recommend that teachers focus on creating enjoyment and not worry too much about changing anxiety. The above review highlights there is some risk in adopting a completely “hands-off” approach to anxiety. However, acknowledging that anxiety cannot be eliminated, and its adverse effects can be offset by arousing more positive emotions, provides interesting pedagogical possibilities.

Future Directions

Although guessing what the future might bring is always an uncertain endeavor, we might offer three suggestions as to where language-anxiety research might be going. First, with respect to the specialized approach, it is likely that we will see more use of specific conceptualizations of language anxiety tied to specific language-learning processes. This trend was prominent as the literature moved from general conceptions of anxiety to examining language anxiety and, more recently, stages of processing and different skill areas, leading to an even more fine-grained analysis of anxiety effects.
A second possible direction is the continued development of the dynamic approach. Although CDST has been around for over a decade, a lack of appropriate research methods has limited empirical investigations. However, that situation is changing (see also Hiver, this volume). The idiodynamic method (MacIntyre & Gregersen, 2021) that underlies the studies reviewed above is generating interesting findings, and additional methods based on CDST are now available (for additional methods, see Hiver & Al-Hoorie, 2020). Future research is likely to take advantage of these new methods to examine what happens as anxiety rises and falls over different timescales, such as seconds, minutes, tasks, or semesters.

The third direction is to examine what can be done about language anxiety and how teachers might reduce its negative effects. Although reducing anxiety has intuitive appeal, it is worth noting that anxiety will probably always be an issue when people talk to each other, but results are showing that one can reduce its negative impact either directly or indirectly (such as by focusing on enhancing positive emotion). Dewaele’s research suggests that looking at how anxiety relates to other factors such as enjoyment, even stronger, better integrated, and more nuanced approaches are possible in the future (see Dewaele et al., 2019).

Language anxiety has been, and likely always will be, a concern for teachers and learners. This chapter has summarized core findings in the area and offers a language-anxiety theory with a set of interrelated hypotheses supported by research. Most of the existing research has adopted a specialized approach using scales in questionnaires. The arrival of the dynamic approach, however, has the potential to rapidly expand theory and research in the area. A combination of approaches allows for even more detailed descriptions of the processes by which anxiety affects language learning.

Note

1 We will use “language anxiety” without terms such as target, foreign, or second language. L1 refers to native or first language and L2 to target, foreign, or second language.

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